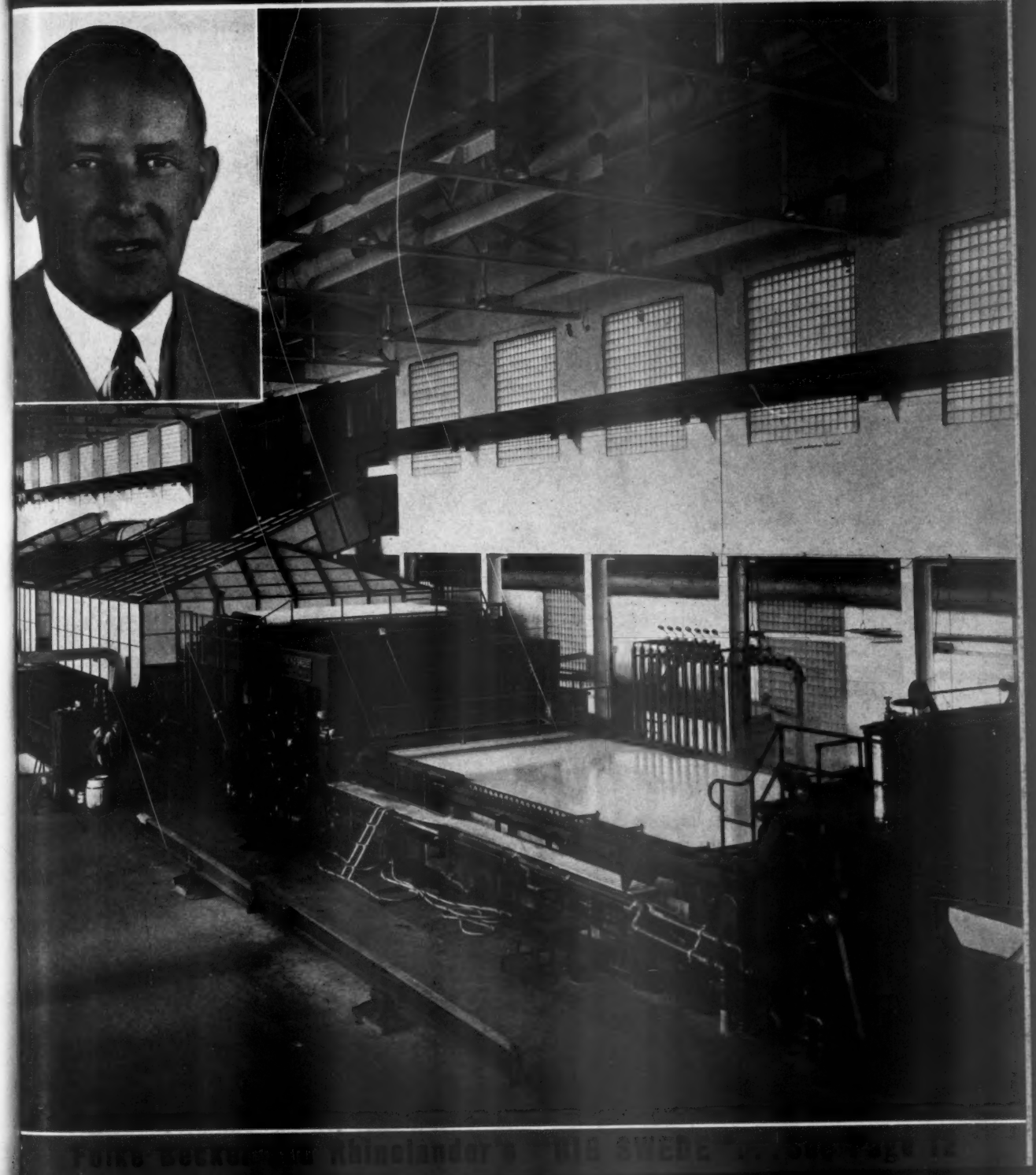
PULP & PAPER INDUSTRY



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Editorials

CHEERS FOR A GREAT YEAR--ALMOST OVER

THE editorial published in our October issue, pointing out how the pulp and paper industry increased pulp, total paper and paperboard production this year, despite having less manpower, less trucks, less tires and less almost everything else, was republished in other periodicals. We are gratified to see this wider credit given to the essential wartime job done by this industry.

Since then, figures show the wood pulp production in United States rose to the highest point of any month this year in October. Canada is pledged to keep up newsprint production in 1945, despite grievous lack of manpower in the summer and unfavorable weather.

Now it is assured that about 15,000,000 cords of pulpwood will be produced in 1944 in the U. S., one million over the goal of the industry. Total wood receipts, including Canadian imports, will be 16,500,000 cords, only one per cent under the record year of 1942.

Hats off to the North American pulp and paper industry for a great year of production—1944!

NEW VISTAS FOR AN INDUSTRY BY-PRODUCT

IN four articles in this issue of Pacific PULP & PAPER INDUSTRY there are discussions of the possibility of producing tannin as a by-product of the pulp and paper industry, especially by using hemlock bark. These are on Pages 31, 33, 34 and 35.

An authority on the subject has pointed out to this magazine that merely knowing the potential sources of tannins and having suitable methods for extracting those tannins from the various sources are insufficient justification for attempting to put a new source of tannin into commercial use.

Users of tannins, in general, produce special types of leather. In order to do so, they may use a single tannin or a blend composed of several tannins. After they once have developed a formula for producing their special leather, it is difficult for them to substitute a new tannin for one of the constituents in their formula.

To do so may require considerable research before they can reproduce the special leather which they have been manufacturing. As a result, a large amount of research may be required before a new tannin material can be introduced for commercial use.

Western hemlock was once used by a small Everett, Wash., concern in making tannin for leather treating. Older laborious methods of using the western wood were regarded generally as uneconomic. Now, hydraulic log barking in western mills has changed the picture—maybe it has opened a new byproduct field for the industry.

One important paper company, Marathon Corp., is manufacturing limited amounts of tanning extract powder in its chemical plant at Marathon, Wis. This is made from waste sulphite liquor. The plant also makes vanillin, water softening agents, plastic materials and core binders on a small scale. Markets for most of these proudcts are extremely limited.

For the commercial tanning of leather, quebracho and chestnut extract are the principal vegetable tanning materials used in this country. Large amounts of Chinese nutgalls were imported, but these are mainly used for medicinal tannic acid, rather than leather tanning.

During 1939, about 65 per cent of all vegetable tanning material used by American tanners for leather was imported. Of imported tannins, those made from the quebracho, a hardwood tree grown in Argentina, with a rich red bark, is by far the most important. Other impotrant sources were, or will be again: Mangrove and cutch from the tropical seacoasts, including Borneo, South America and the Philippines, myrobalans from India, wattle from Australia and South Africa, valonia from Asia Minor and Greece, gambier from the East Indies, sumac from Sicily or domestic, and divi divi from Central America and Brazil.

During the war, quite necessarily, there was a great deal of interest in and attempts at, substitutions. Many sources of supplies were cut off and for the most part, the nation just went without. What the postwar developments may be are uncertain. But unpleasant relations with Argentina and a chestnut blight may affect the picture favorably for pulp and paper companies.

U. S. POSTWAR PAPER PRODUCTION OF 20,000,000 TONS

Is Foreseen in WPB Analysis--Russia is ? Mark

+ + +

Scandinavian Pulp Imports Set at 500,000 Tons Annually

RETURN of the pulp and paper industry to supplying peace time demands will offer "unprecedented possibilities" to that industry, according to an anlysis of the postwar demand for paper and paperboard compiled by the Paper Division, Forest Products Bureau, U. S. War Production Board.

The analysis, released in mid-December, projects U. S. paper and paperboard production to an estimated 20,070,000 tons in the second year following victory in Europe. (If V-E came in 1945, that would be in 1947).

That figure compares with estimated production of 17,244,000 tons this year and production of 17,035,688 in 1943 and 13,509,642 in 1939.

Estimated wood pulp required for paper products in the second year following V-E day is set at 12,860,300 tons, based on first quarter 1944 pulp-to-paper ratios. Pulp for rayon and other non-paper uses is estimated at 500,000 tons.

This analysis has long been in the making and is based largely on data gathered throughout the war by the Paper Division and other agencies in the United States and abroad.

Rex Hovey, former director of the Division and now consultant, and Clifton W. Housley, chief of program and statistics for the Division, are among those actively responsible for bringing this valuable information before the pulp and paper industry of the country to assist the industry in postwar planning.

A Service to the Industry

● In making this information available to the component units of the industry throughout the country—both small and large—these men of the Paper Division have performed a service which may well prove to be an outstanding contribution to private enterprise in the pulp and paper field.

In releasing this information they hope to assist companies in intelligently planning future operations.

One important prediction is that U. S. imports of pulp from Scandinavian countries will not exceed 500,000 tons annually in the first few years after the war. This compares to shipments from Sweden alone (the principal exporter to U. S. before the war) of 1,084,634 tons in 1937, 830,087 in 1938 and 957,879 in 1939.

The report states that the pulp demand for Europe during the second year following V-E Day is likely to be about 10,000,000 tons, slightly higher than the 1935 level of 9,300,000 tons, and that European production will not exceed 10,800,000 tons, the level of production in 1935, but lower than 1937. This estimate is made because of lost mill capacity due to war damage and increased demand for lumber in Europe, competing with pulp for wood and labor. This would leave 800,000

PAPER AND PAPERBOARD: Projected United States Production Second Year Following V-E* and Wood Pulp Requirements

(Tons of 2,000 pounds)

Grade of Paper and Paperboard	Projected Paper and Paperbrd. Prod. 2nd year following V-E.	Est. Total Wood Pulp Requirements.	GRADES OF WOOD PULP							
			Bleached Sulphite.	Unbleached Sulphite.	Bleached Sulphate.	Semi-Bleached Sulphate.	Unbleached Sulphate.	Soda	Groundwood	Miscellaneous
Total paper & paperbd.	20,070,000	12,860,300	1,971,400	1,531,000	910,900	206,600	4,475,000	630,800	2,097,500	1,037,100
Total paper	10,790,000	9,059,500	1,885,700	1,339,400	758,000	175,500	2,271,000	602,800	1,746,300	280,600
Newsprint	850,000	890,000	----	111,300	----	11,500	----	----	767,200	----
Grdwd., book & fine	4,300,000	3,311,800	1,236,100	362,100	441,900	14,500	26,900	554,700	669,700	5,900
Coarse & ship. sack	3,240,000	3,297,800	333,800	337,600	244,000	110,500	2,142,100	20,200	40,400	69,200
Special ind. & absorb.	300,000	256,700	34,500	70,900	28,600	37,900	51,300	12,000	16,000	5,500
Sanitary & tissue	1,100,000	1,109,200	281,100	455,000	43,500	900	44,900	15,900	253,000	14,900
Building papers	1,000,000	194,000	200	2,500	200	200	5,800	----	----	185,100
Total paperboard	9,280,000	3,800,800	85,700	191,600	152,700	31,100	2,204,000	28,000	351,200	756,500
Container board	4,300,000	2,420,900	----	7,200	----	----	2,098,900	----	77,500	237,300
Folding & setup bxbd.	3,300,000	596,100	80,400	157,200	144,300	28,000	45,500	21,200	102,100	17,400
Building board	1,000,000	602,000	----	6,000	----	----	----	----	106,000	490,000
Miscellaneous (including cardboard)	680,000	181,800	5,300	21,200	8,400	3,100	59,600	6,800	65,600	11,800

*The second year following V-E (victory in Europe) refers to the second calendar year following the year in which the European phase of the war ends. For example, if V-E occurs in 1945, the "second year following V-E" would be 1947.

tons of European pulp for export to all non-European countries, including U. S. and South America.

Russia's position, it said, will probably remain an unknown factor for some time after the war. Its forests were described as "tremendous" but largely "comparatively inaccessible." The report said whether Russia exploits its own wood resources or continues to obtain part of requirements from Finland will have an important bearing on international pulp trade.

Canada's estimated pulp production for second year following V-E Day was listed at 6,000,000 tons with estimated requirements of 5,000,000 tons. Canada's previous high was 5,700,000 tons production in 1941.

Pulp production in U. S. for the second year after V-E Day is estimated at 11,700,000 tons, augmented by 1,000,000 tons from Canada and leaving required minimum imports from Europe at 660,000 tons. In order to achieve the projected high rate of pulp production, U. S. pulpwood production would have to be increased over the present annual rate of 17,400,000 cords to about 19,300,000 cords.

The report goes into a thorough discussion of the pent-up purchasing power for consumers' goods, European needs for paper, new uses of paper and the prospects in all fields of production. The biggest increase is expected in coarse papers. Important increases also are expected for book, fine and tissue papers and paperboards. A decline in newsprint production below 1941 is foreseen with many mills switching from newsprint to groundwood specialties.

Bases of Report

● These are assumptions on which the report is based:

"That there will be a high level of industrial activity in the immediate post-war years with an accompanying high level of national income, probably at a level of 125 billion dollars annually (Dept. of Commerce analysis).

"That sufficient labor will be released from the Armed Services and war industries to permit higher operations in the pulpwood, pulp, and paper mills.

"That with adequate labor, larger quantities of pulpwood will be produced and thus permit a larger production of pulp, paper, and paperboard.

"That the bulk of the Scandinavian pulp will be needed to supply Europeon demands in the immediate post-war years and that United States imports of pulp from these countries will be much less than in the prewar years — probably not exceeding 500,000 tons annually in the first few years following the end of the war in Europe.

"That production facilities in the pulp mills and paper mills will be increased sufficiently to meet the production level projected. In this connection there are already definite indications that industry will launch an important program of re-equipment as soon as war restrictions governing the purchase and installation of machinery and equipment are removed.

"Based on the foregoing assumptions the projected level of production of paper and paperboard during the second year following V-E is shown on Page 8. With the projected production is also shown the estimated quantities of pulp required to produce this paper and paperboard."

1944 Estimates Far Exceeded

● For comparison with the projected U. S. production figures on Page 8, the table below shows paper and paperboard production for the past five years. The estimates shown below for 1944 were made by government officials in March of this year and the total is about 444,000 tons below what 1944 production actually will be when this year ends.

The fact that estimates last spring were nearly half a million tons shy of actual figures is a grand and glorious tribute, by implication, to the pulp and paper industry of the United States. How the industry rolled up its sleeves and did the impossible, that is—make more total paper than a year ago despite greater restrictions and handicaps, is discussed more at length in our opening editorial on Page 7. The greatest increases were, naturally, in containerboard and coarse papers, especially needed for successful prosecution of the war.

TOTAL PAPER PRODUCTION IN UNITED STATES

(Tons of 2,000 lbs.)

	1939	1940	1941	1942	1943	1944 (Estimate)*
Newsprint	954,259	1,056,304	1,043,999	967,211	811,309	720,000
Book	1,534,591	1,655,423	2,025,891	1,704,029	1,592,878	1,398,000
Groundwood	540,342	550,453	642,676	610,168	585,673	538,000
Fine	723,302	735,753	950,014	1,055,475	1,020,601	854,000
Wrapping (Coarse)	2,238,993	2,500,818	2,778,441	2,713,738	2,501,637	2,702,000
Tissue	648,429	733,894	175,336	170,653	162,766	162,000
Sanitary	———	———	737,538	811,343	806,023	796,000
Absorbent	121,717	129,410	61,941	64,530	88,254	92,000
Building Papers	659,090	682,460	917,912	1,001,383	877,582	926,000
Other Paper	63,625	60,120	28,657	16,148	129	———
Container Board	3,361,441	3,434,834	4,183,846	3,755,438	4,087,972	3,988,000
Folding Boxboard	1,359,961	1,416,452	1,841,916	1,711,795	2,015,640	2,156,000
Setup Boxboard	865,485	898,549	1,238,850	996,688	829,102	498,000
Tube Stock	———	———	———	164,785	307,308	336,000
Building Boards	114,505	179,443	761,480	1,052,054	1,063,851	920,000
Other Boards	324,102	449,796	373,868	288,424	284,963	714,000
TOTAL	13,509,642	14,483,709	17,762,365	17,083,862	17,035,688	16,800,000

Source: 1939-1943: Bureau of Census, U. S. Department of Commerce.
*1944 Estimates: Industry Report March, 1944, War Production Board and Bureau of Foreign and Domestic Commerce, which is far below revised estimates made this month totaling 17,244,000 tons.

Alaska Pulptimber Offering Will Be Discussed; Secretary Ickes States His Views on Indian Claims

● It is expected that Crown Zellerbach Corp. officials who took a noncommital "look-see" at the government's offer of some 14,000,000 cords of spruce and hemlock in vicinity of Ketchikan, Alaska, for a pulp or pulp-paper mill will discuss the matter further with B. Frank Heintzleman, Regional Forester, of Juneau Alaska, in late December.

Mr. Heintzleman, who was called Alaska's "greatest salesman" as a friendly compliment by top Crown Zellerbach officials, is expected in Seattle befor the end of the year, at any rate, and he may see other interested parties at that time. He may go to San Francisco.

He will be able to bring with him a compilation of timber cruises and detailed maps of the area along the east shore of Prince of Wales Island and other territory in the Ketchikan vicinity which is the likeliest area to be leased—if anyone takes up the government offer. Mr. Heintzleman is going to be able to complete compilation of the data by mid-December.

It is obvious that more detailed sales terms can be discussed after that job is finished and then the pulptimber unit offering can be advertised on request of any interested groups.

Several of the top officials of the Zellerbach organization as well as their logging and forestry experts have looked over the area and also President Max Oberdorfer of St. Helens Pulp & Paper Co. took advantage of the invitation to see the timber offering on the spot.

Indian Claims At Stake

● Complicating the U. S. Forest Service's efforts to interest an American company or representatives of newspapers in a pulp mill in the National Forest of Alaska (which embraces the only suitable timber available), are the recent activities of the Department of Interior in sponsoring hearings that may return these timber lands to the Indians.

A discussion of these Indian claims was published in our November issue.

The fundamental issue of the claims of the Indians, which have been in process of hearings in Alaskan and at Seattle since September, are:

1. Is decision as to whether certain citizens of the United States have suffered violation of their rights at the hands of the federal government still a function of the U. S. courts, or has this authority as far as Alaska Indians are concerned passed into the hand of Interior Secretary Ickes?

2. Has Congress relinquished to Mr. Ickes virtually all authority over the future of the Territory?

The week of hearings in Seattle which began November 15 made clear that the Indian claims eventually must be settled by the U. S. Court of Claims, or the U. S. Supreme Court or the Congress—or by all three.

That his decisions are subject to review of the court have been denied by Mr. Ickes, who conducted the hearings through Department of Interior examiners. Congress, nevertheless, apparently still retains power of action, although it delegated to the Secretary of Interior the authority to create Indian reservations in Alaska.

PRESENT AND PAST PREXIES of the American P & P Mills Supts. Assn. RAYMOND BARTON (left), 1944-45 President and Supt. of Michigan Paper Co. of Plainwell, Mich., who discussed association affairs with W. H. BRYDGES (right), Vice Pres. and Gen. Mgr., Bedford Pulp & Paper Co., Big Island, Virginia, and 1933 President of the association. Mr. BRYDGES is now on the finance committee.

RAY BARTON is undergoing a lot of traveling hardships in an aggressive attempt to get around to all the Divisions of the Association in the USA. He is giving much of his time to his campaign to strengthen the APPMSA.

Congress had designated the U. S. Court of Claims as the agency by which Alaska Indian claims are to be decided. But the Office of Indian Affairs seeks to have the Interior Secretary decide the claims.

Besides pulptimber, the future of the fisheries industry was an issue of the hearings and most of the testimony and the participants were identified with fisheries.

Even though the Indians' claims do not apply to all the areas in Southeast Alaska involved in the five proposed pulptimber allotments offered by the Forest Service, they do apply to considerable parts of each allotment and very definitely to all the best available timber. (See map, page 9, November. 1944, Pac. PULP & PAPER INDUSTRY.)

Ickes' Statement

● Secretary Ickes, in a letter published in the Washington, D. C., Post, took issue with a previous letter published in the same newspaper—an open letter by William R. Carter, editor-manager of the Juneau. Alaska, Daily Empire—which contended that the Department of Interior's actions have "discouraged" Crown Zellerbach Corp. from investing in a pulp and paper mill in Alaska.

Mr. Ickes asserted the Carter letter was "an old wives' tale" and that no reputable timber company or other concern has ever had any difficulty in buying timber from Indians if a reasonable price was offered.

He raised the possibility, however, that if Indian claims are upheld, that the "best interests" might "require establishment of an Indian reservation." This is the point, of course, which is stressed by critics of Mr. Ickes who assert, that, in effect, the company proposing to build a pulp or pulp-paper mill would have to deal actually with Mr. Ickes personally and to them that is an unpleasant prospect.

Mr. Ickes said he is making no "gift" of Alaska to the natives but cited the law on land titles in Alaska of May 17, 1884, which he noted "provides that Indians in Alaska like other human beings should be protected in the possession of the lands which they used. occupied or claimed as their own."

Mr. Ickes said the hearings in the dispute are "an attempt to find out what lands do belong to the Indians and Eskimos in Alaska under existing law. I don't know whether the evidence will establish Indian ownership to vast areas, small homesite or no lands at all."

No one familiar with the past 15 years' of offers and counteroffers and talk about starting a pulp and paper industry in Alaska, holds out any hope whatever that timber could be brought to Puget Sound or some other point in the states for manufacturing.

It is now considered a settled government policy—whether the Forest Service (Dept. of Agriculture) or Department of Interior is in control—that manufacturing of the National Forest timber in Alaska would have to be done in Alaska.

There have been rumors that some interested parties have "cooled off" toward the Forest Service offer in the past 30 days. At any rate, the tremendously high cost of any initial investment in a mill in Alaska and the labor problem, involving living conditions, etc., are factors that are not being overlooked.

Some expert observers contend only a newsprint mill could be practical unless some company owning a process for high quality products but owning no timber in the States could be interested.

Night Differential, Paid Vacations Approved.

● Adjustment of night shift differential pay of 2½ cents per hour and a week's additional vacation for employes of more than five years' standing has been granted the approximately 12,000 pulp and paper mill employes of Washington and Oregon.

The adjustment was made through a directive handed down by the 12th regional war labor board in Seattle Nov. 24, and is the result of joint application to the WLB last June by both employers and employees.

Provisions are retroactive to June 1, 1944.

Drive Is Big Success At Camas

● An objective of $150,000 in the 6th War Loan Drive was easily within sight of the Drive Committee at Camas, Wash., mill of Crown Zellerbach Corp. On December 1, a total had been subscribed of $141,225. These are maturity figures. Naturally the final total will be far in excess of quota when the regular monthly payroll deductions are added.

Ogdensburg to Make Pulp for Plattsburg; Later Will Virtually Double BFD Paper Sales

● A number of details regarding the recent acquisition of The Algonquin Paper Corp. of Ogdensburg, N. Y., by Berst-Forster-Dixfield Co., were given by R. G. Fairburn, President of B-F-D, to the eastern representative of Pacific PULP & PAPER INDUSTRY just before going to press with this issue.

The Augsbury family, former owners of the Algonquin mill, received $1,500,000 for the stocks and bonds of the company, and for the present the Ogdensburg plant will serve as a pulp mill to furnish pulp for B-F-D's mill at Plattsburg. As soon as equipment is available, paper producing and converting equipment will be installed to supplement —but not substitute for—the Plattsburg production, Mr. Fairburn said.

The Ogdensburg pulp mill will supply Plattsburg with pulp only until the Ogdensburg paper mill expansion absorbs its pulp production. That eventuality again will make Plattsburg dependent on the open market for chemical pulp.

B-F-D has long been a manufacturer of wood and paper specialties for selective sales by the Diamond Match Co., and the latter has a minority interest in B-F-D.

"We have for several years been producing paper specialties for selective sales on what might be termed an experimental basis," Mr. Fairburn said. "Just as the war broke out we had come to the definite conclusion that we wanted to go ahead on a broader basis. The opportunity to acquire the Algonquin mill presented a step toward our postwar plans. At Ogdensburg we will eventually produce toilet tissue, household waxed papers, and also facial tissue."

The Algonquin mill, one of the largest in the U. S., suspended operations more than a year ago. The new management expects that there will soon be instituted there a payroll of 500 men and women drawing in excess of $25,000 weekly in wages.

The newsprint machine now installed in the Algonquin mill has been sold to another U. S. company, Mr. Fairburn said.

Sales of B-F-D Co. paper products only run between $6,000,000 and $7,000,000 annually, and it is believed that with the acquisition of the new property, with its advantageous location, these sales figures will be almost doubled. Plattsburg at present is the only paper producing operation in the company.

The Ogdensburg mill will be under the same operating management as that of the Plattsburg mill, Mr. Fairburn pointed out.

Pupwood will be obtained from the George Hall Co., and delivered at the dockside in George Hall fleet bottoms. There are ample unloading facilities where the mill is situated on the St. Lawrence River.

Capacity of the Algonquin plant includes 110 tons daily from the groundwood mill, and 100 tons per day from the sulphite mill.

While Mr. Fairburn declined to comment on any products other than those mentioned above, or to speculate as to the future of paper products, this move by B-F-D is regarded in the industry as a significant barometer of postwar possibilities.

Westminster, B. C., Mills Plan $1,250,000 Expansion To Double Tissue, Waxed Paper, Fruit Wrap Production

● Plans for doubling capacity of Westminster Paper Mills, Ltd., at a cost of approximately $1,250,000 have been announced by Vice President and General Manager E. M. Herb.

The company's plant, located in New Westminster, devoted to production of paper specialties, has been operating at the rate of approximately 9,000 tons a year. The expansion program will give a production of 18,000 tons.

Present production has been handicapped to some extent by the necessity to swing from one line to another on the company's one paper machine so as to meet the diversified requirements of the market. These changeovers have naturally caused loss of time, which installation of a new machine will eliminate.

When the new setup is in working order, probably early in 1946, it will be possible to use the present Beloit machine exclusively on crepes — towels, napkins and similar products. The new machine—132 inches wide with 126-inch trim (similar to the older one)—will concentrate on flat papers, tissues, waxed stocks and fruit wraps for which the company is finding an ever-growing demand.

"For a long time we have felt that we were crowding too much work on our one machine," Mr. Herb told Pacific PULP & PAPER INDUSTSY in announcing the company's expansion program. "We have worked it seven days a week, 24 hours a day, ever since the summer of 1935, even though there was a pause for rebuilding in 1941."

The company's new program represents a doubling of building space as well as of production. The general contract for the required buildings has been awarded to Dominion Construction Co. of Vancouver. The beater room and finishing room will be enlarged and new power house, boiler house, machine room and wax storage room are to be erected. The buildings will be of reinforced concrete with steel trussed roof, with fireproof features.

New installations also will include two jordans in the beating room with Hydrapulpers and Hydrafiners, manufactured in Canada by Alexander Fleck, Ltd., of Ottawa, associated with Dilts Machine Works of Fulton, N. Y., and Black-Clawson & Co. of Hamilton, O. Automatic conveyors are another feature of this part of the new plant.

In the power house drive and motors are to be installed by General Electric and between 1,200 and 1,500 additional horsepower will thus be provided.

At present the company employs about 225 men and women, with peak employment occasionally rising to 260. When the plant is doubled the payroll will include about 400 employes, according to Mr. Herb's estimate.

Soundview Pulp Co. Contracts for Barker Plant But Proposed Alcohol Plant Is Vetoed by Officials

● Erroneous reports (not in this magazine) to the effect that a contract has been let for construction of an alcohol reduction plant at the Soundview Pulp Co., Everett, Wash., apparently arose from the fact that a contract actually has been let for construction of a hydraulic log barking plant at the big Everett pulp mill.

The alcohol plant, which had been approved by the Navy, has now been disapproved by the regional Defense Plant Corp. authorities.

As in the case of the plant now being built in Bellingham, Washington, to make alcohol from the sulphite pulp effluent of Puget Sound Pulp & Timber Company, the Everett plant would require financing and approval of the government through its war industry agency, the Defense Plant Corp.

The Bellingham alcohol plant, which will be the largest in the world making alcohol from pulp mill liquor when it is completed this winter, also was disapproved at one stage in negotiations by the regional Defense Plant authorities. However, there have been no developments to indicate the Everett proposal will follow a similar course to eventual approval.

As reported in Pacific PULP & PAPER INDUSTRY in September, a whole log adjustable ring type of hydraulic barker, capable of cleaning logs up to 60 inches in diameter and 32 feet in length, will be put into operation at Soundview next year. It will make tremendous savings in wood for the mill which consumes about 175 million feet a year.

A contract has been let to Isaacson Iron Works of Seattle to build the 56 x 100 foot steel building and all steel log haul for the barker.

J. P. Hummel Dies

● J. P. Hummel, chairman of Hummel-Ross Fibre Corp. of Hopewell, Va., and a pioneer in developing improved containers and packaging, died Nov. 15. His son, Fred Hummel, is president of Hummel-Ross Fibre Corp.

IMPROVEMENTS and EXPANSION

At Rhinelander Paper Co. Include "Big Swede," Continuous Stock Treatment and Power Plant Savings

In the past couple of years, top executives of leading pulp and paper companies of both United States and Canada from coast to coast — and even industry leaders from England— have traveled to Rhinelander, Wis.

It isn't easy to get there from any direction. Rhinelander is in extreme northern Wisconsin in the Indian reservation country. The impelling magnet that drew these men was a truly wondrous new paper machine as well as many other interesting installations.

Rhinelander Paper Co. makes glassine and greasproof paper. But even the makers of the other types of papers went there to see "The Big Swede"— shown in OUR COVER PICTURE — because they were interested in its design and in the lighting and ventilating features of the new machine room. They were also interested in new continuous stock preparation equipment— incidentally a development of the Pacific Coast—and new power plant improvements saving 20 tons of coal a day.

Pacific PULP & PAPER INDUSTRY decided it was high time that an industry publication joined in this pilgrimage. It did just that and here follows an on-the-spot story of Rhinelander, of the men behind Rhinelander and of the new developments at that mill.

The "meat" of this story— never told before—is how mill management, mill employes and equipment companies aggressively "teamed up" and worked together continuously and closely to modernize the Rhinelander Paper Co.

AT first, it seems in order that we go into a little history.

Until 40 years ago, the little town of Pelican Rapids, on the headwaters of the Wisconsin River, was a lumber town in the midst of fine stands of spruce forest. At its peak it boasted of 22 sawmills.

The sawmills disappeared as the timber disappeared . . . every last one of them. One who motors over this rolling country today sees miles of barren land that dreamers once thought might be fruitful farms. Today the state is rehabilitating would-be farmers southward. Here —as in sections of the Pacific coast and other parts of the country—the bitter lesson has been learned that the land was meant for crops of trees and not farm produce. Where tree-planting sponsored by paper companies has been initiated in northern Wisconsin, it has thrived —it has thrived where farmers failed.

A much-needed railroad was brought to Pelican Rapids by F. W. Rhinelander, a New York capitalist, and a grateful community decided to rename the town in his honor. Then, in 1903, a group of far-sighted citizens banded together and formed the Rhinelander Paper Co.

For some years there were just two machines on newsprint. Later the operators turned to products with a higher return and rebuilt the newsprint machines for manufacturing glassine and greaseproof papers, and installed two tissue machines.

Folke Becker arrived on the scene in 1925. Born in southern Sweden, Mr. Becker had just graduated as a chemical engineer in Germany when he landed on American soil in 1914. After two years as chemist with Riegel Paper Co. (during which period he married Alice Ewing, Jersey school teacher), he put his accumulated knowledge of glassine and greaseproof production into the rebuilding and changing over of the Westfield River Paper Co., at Russell, Mass., from a fine paper mill to glassine and greaseproof. He had operated the Russell mill from 1916 to 1925 when he was called to Rhinelander as general paper mill superintendent.

In 1928 he became general manager and in 1935, the president, and today Rhinelander has one tissue and five glassine and greaseproof machines, including "The Big Swede"—the widest and fastest machine ever put to that job. The mill's capacity output daily is 75 tons of glassine and greaseproof paper and 20 tons of machine-glazed paper.

FOLKE BECKER (left), President and General Manager (also in our cover picture inset), and F. W. JOHNSON, Operating Manager and Engineer, in Mr. BECKER'S office at Rhinelander.

Key Men

● Montana-born F. W. "Stub" Johnson, for ten years a builder of mills, joined Mr. Becker in 1934 as his operating manager and chief engineer. Mr. Johnson graduated from the University of Minnesota in 1914 and worked 10 years for Kimberly-Clark before joining C. R.

Meyers & Sons, mill construction engineers; with whom he spent 10 years.

Lewis Dozier, who worked with Mr. Becker at Riegel when he first arrived in this country and who helped him rebuild and run the Russell, Mass., mill, followed his chief to Rhinelander 16 years ago and is his paper mill superintendent. He was born in Brooklyn.

Gustav Becker, older brother of the president, who had been in the United States in 1901 and returned again to stay in 1918, except when he was sailing the seven seas, wound up a career in the merchant marine in 1922. He joined his brother at Russell and in 1929, Gustav, also, came to Rhinelander to be the superintendent of the growing conversion plant, now housing big coating and laminating departments across the city from the pulp and paper mill.

Sigge (Sig) Ekman, sulphite superintendent, and also a native son of Sweden, has been with Mr. Becker for 14 years after a career in this country that took him to mills in Bogalusa, La., Ontanogan, Mich., Rothschild and Tomahawk, Wis.

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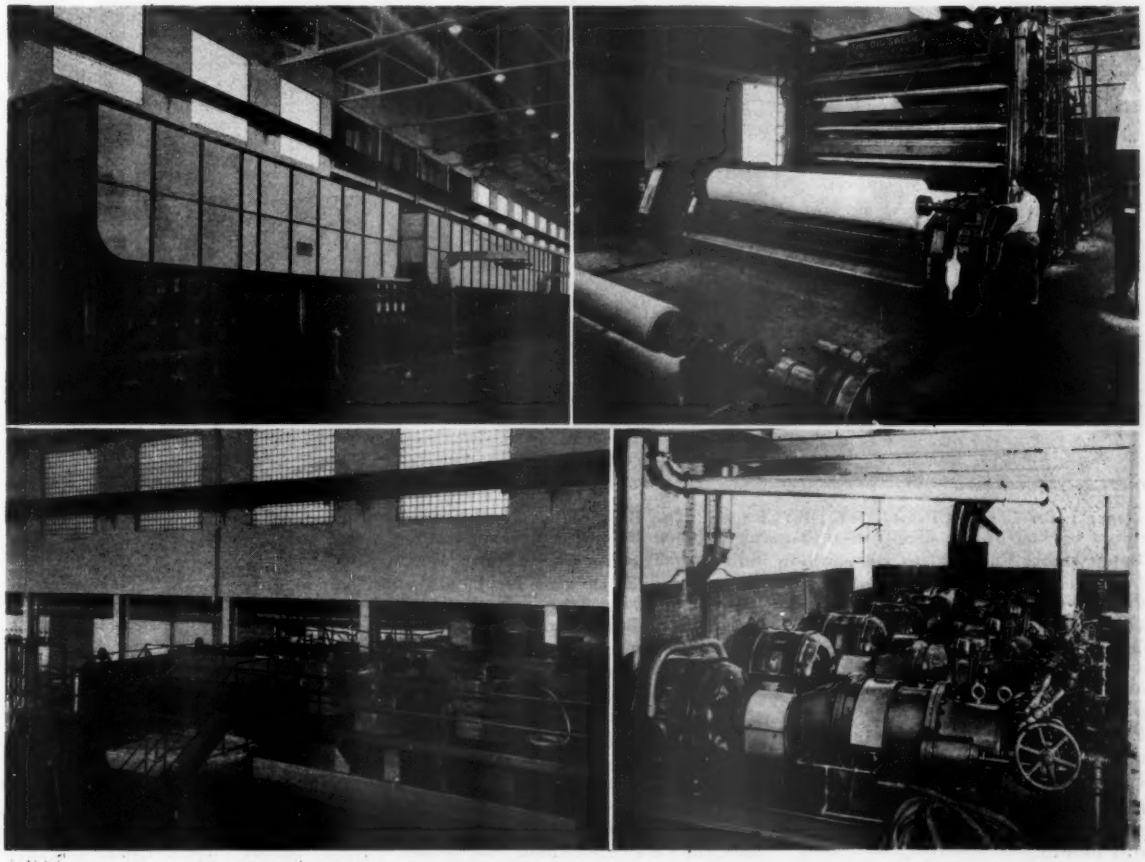
W. A. Duggan, formerly with Consolidated Water Power and Paper Co. has been sales manager at Rhinelander for the past four years.

Expansion

● Expansion of Rhinelander Paper Co.'s pulp and paper mill came just in the nick of time before wartime restrictions were imposed. In the nick of time, not only for Rhinelander and its stockholders and employes but for the U. S. Government and the Army and Navy and the allies of this nation in the war. Because the expansion made possible a much-needed increase in production of special papers for packaging, and protecting meats, shortenings, bakery items, other foodstuffs, coffee, tea, etc., much of it for shipment overseas in all kinds of climates and under all kinds of handling conditions. This expansion was a definite and important contribution to the war effort but, paradoxically, it wouldn't have been possible if it had been delayed.

"The Big Swede"—the affection-



Upper left: THE DRYER SECTION OF RHINELANDER'S "BIG SWEDE," 182" machine which makes glassine and other special papers. Ross Engineering's economizer system is shown with the hoods. This system pulls the exhaust off and heats fresh air coming back in the room.

Upper right: THE DRY END AND CALENDER SECTION OF THE "BIG SWEDE." Beloit center wind reel with Westinghouse Rototrol constant tension drive. The reel is driven by the motor at left, speed of which is controlled by Rototrol which provides constant tension from empty to full roll at any speed of the paper machine. Tension is controlled automatically on master panel on right. Cameron Type 20 rewinder is on "The Big Swede."

Lower left: BIRD CENTRIFINERS AND SCREENING EQUIPMENT serving "The Big Swede."

Lower right: PRODUCTION LINE OF MORDEN STOCK-MAKERS which prepares stock for the big glassine machine. Through wall on left is "The Big Swede" Room.

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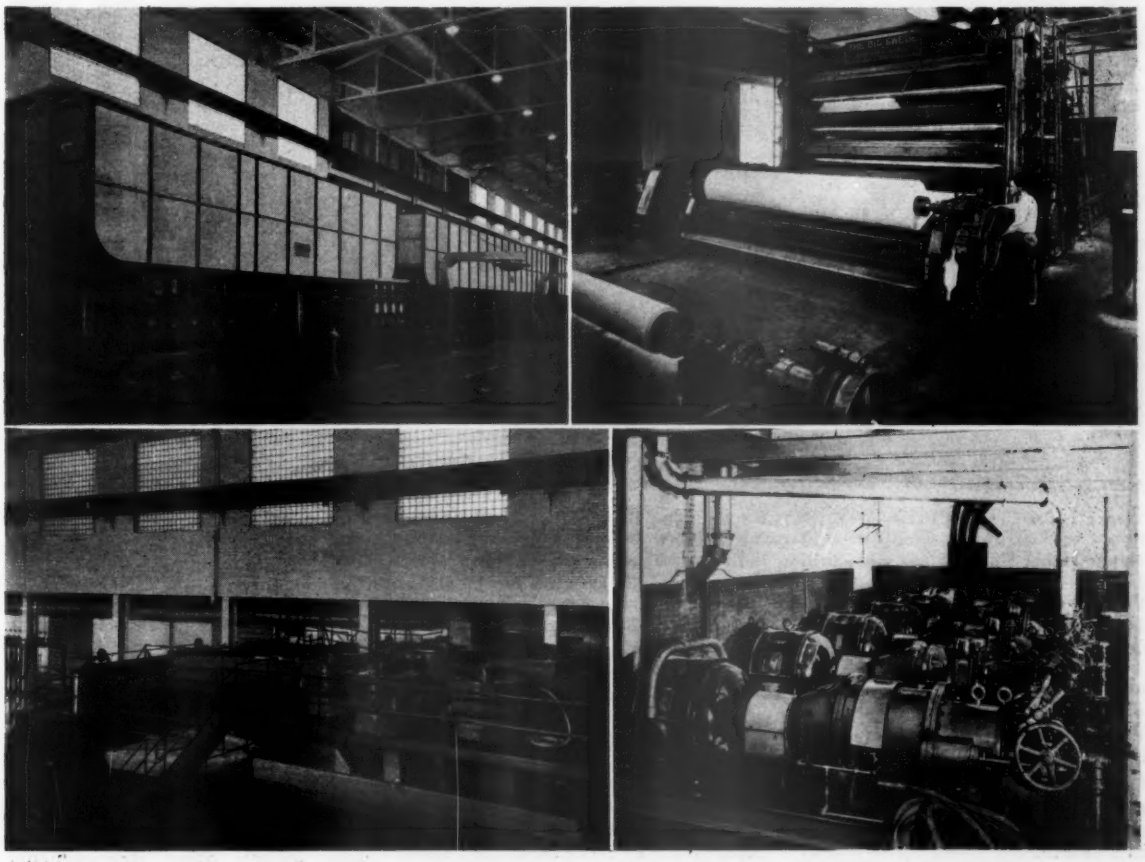

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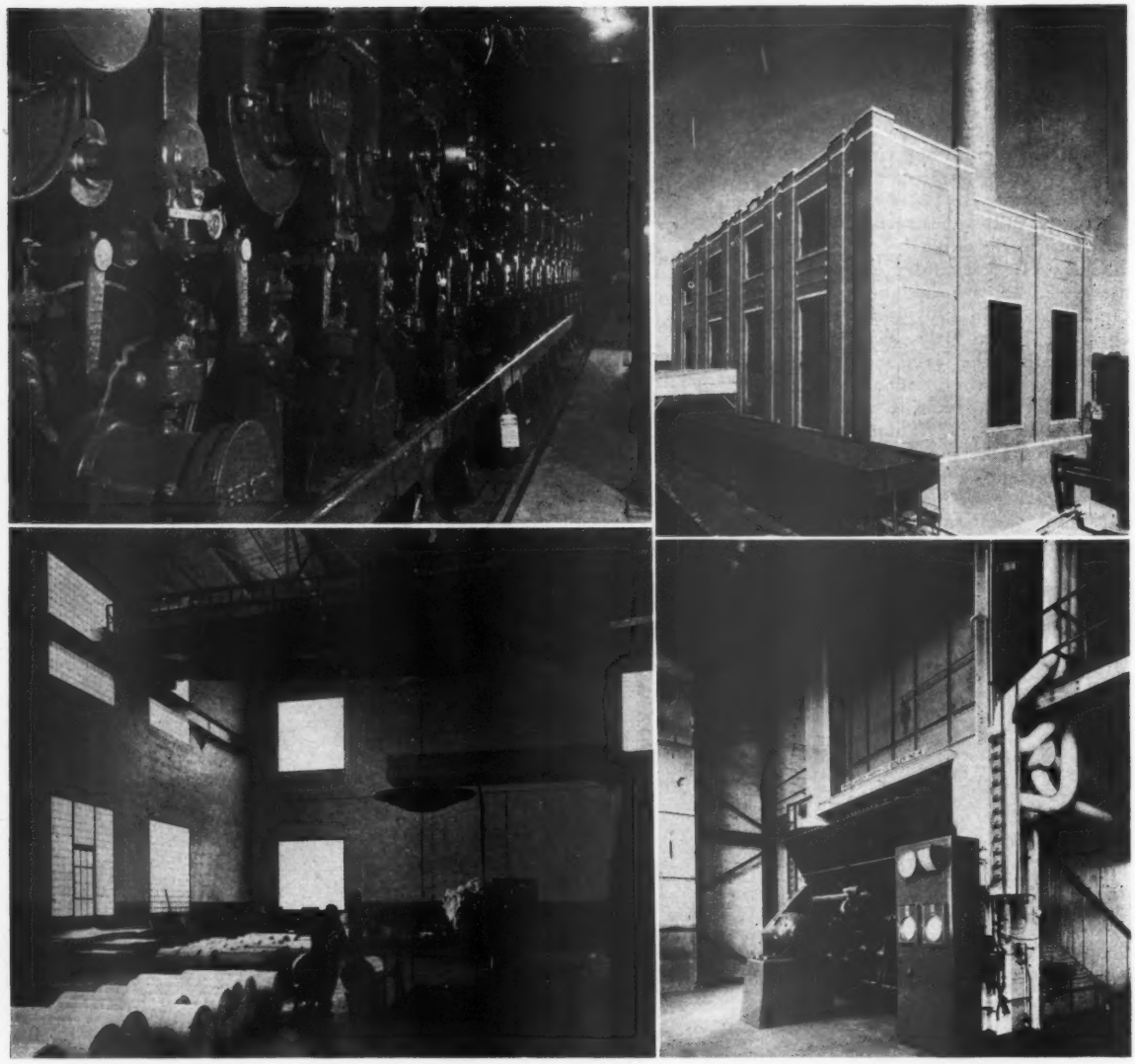

Upper Left: CLOSEUP OF THE DRYERS on "The Big Swede" at Rhinelander Paper Co., showing greatly shortened draws worked out in cooperative planning between Beloit Iron Works and mill men.
Upper right: Boiler plant, an addition built for "The Big Swede."
Lower left: "Big Swede" Room . . . Windows are made of glass block, diffusing light at different angles. Fresh air is thrown in front of the machine by the Ross Engineering Corp.'s ventilation apparatus shown at right.
Lower right: One of the four boiler installations at Rhinelander.

ate and fitting term given by employes to the huge 280-foot long Beloit, with a 182-inch wide Fourdrinier and a speed of 400 to 750 feet per minute—plenty fast for glassine and similar products—went into operation just three years ago this month.

A model machine room, with diffusing-light glass block windows and Ross Engineering's economizer ventilating system, was built and has become a show-place of the industry.

A total of 21 Morden Stock Makers for all six paper machines has done away with much heavy beater equipment, saved horsepower up to 32 per cent, eliminated mazes of piping, and given flexibility and faster control of stock on the machine. They also do away with the heat bugaboo—detrimental to hydration in glassine manufacturing—and make cleanliness an easier achievement.

A new steam boiler plant was built for "The Big Swede." Addition of a 5,000 kva, single extraction, condensing turbine generator as well as a 100,000-lb.-per-hour stoker-fired boiler and auxiliary equipment made possible a saving of 20 tons of coal a day. An almost perfect heat balance was attained and savings were expected to repay all improvement costs by 1946.

A new finishing room, three additional digesters, bringing the total for the mill to seven, and expansion of the water filtration plant capacity were among other developments that came in the train of improvements brought about by and for "The Big Swede."

Story of the Big Swede

● The story of the construction of "The Big Swede" itself is an inspiring one because of the manner in which management, employes and

the machine manufacturing company worked together.

John E. Goodwillie, sales engineer for Beloit Iron Works, held what amounted to virtually classroom sessions with the engineers and machine employes at Rhinelander, all of whom cooperated in drawing up the plans for the big machine.

Full-size front elevation drawings of the press section and part of the dryer section were made. These were hung up on walls at the mill. They were studied, discussed, worked over and revised—not only by Mr. Goodwillie and the management and the engineers, but by the men who would operate the machine.

They worked out a scheme for the lowest possible draws that would still permit the machine to be operable. The "class" worked so diligently at its task that it took out almost all the known limitations that had controlled glassine machines. All the accumulated experience gained by management and employes on the other five machines at Rhinelander were utilized in eliminating almost all previous limitations on production and quality.

Now, the employes who helped plan "The Big Swede" took over the job of operating it when it started rolling. They were mighty proud to be on a machine they had helped to build. The machine crews worked right on through the period of erection and by the time the machine was rolling, they really felt it belonged to them.

The priority system was in effect before the machine was completed and it raised difficulties that the paper company and the manufacturer had to contend with until the job was done.

Characteristics of "The Big Swede" that distinguish it are the efficient nesting of the presses, the efficient way in which the dyrers are put together, with draws greatly shortened, and suspension of the top dryers.

Glassine, of course, is made only at its lower-paced speeds but the 750 foot -a-minute speed can be attained on certain products.

Pulp Preparation

● Pulp preparation has been one of the most difficult phases of glassine manufacturing. A high quality Mitscherlich sulphite pulp is required and part of the preparation is largely indirect cooking. Incidentally, all pulp production at Rhinelander — including Mitscherlich and other grades, bleached and unbleached sulphite—totals at capacity 110 tons daily.

The company experimented for about three years with all kinds of pulp preparation equipment before deciding on Morden Stock Makers. A principal objective was to get away from the big, heavy equipment which had been in vogue and which seemed necessary for so long in glassine plants. Also, the company was determined to cut down its heavy power use.

Before the war, the Rhinelander pulp was put through a pilot installation of Morden Stock Makers at another Wisconsin mill and numerous tests were taken.

Today, at Rhinelander, beaters are used only for mixing. The 21 Mordens for all machines use 150 horsepower each and a saving of 32 per cent in horsepower is effected, according to the management. There are a battery of six Mordens on "The Big Swede" and one of the things the company likes about the new equipment is that they can be operated and adjusted by the machine tender himself.

According to Rhinelander officials, the quality of stock on the paper machines, including "The Big Swede," can now be changed in about two and one-half minutes as a result of the continuous treatment principle effected by these small but efficient machines. The stock reacts almost instantly because it is not handled in batches as in the past.

The elimination of heat, as already stated, was a big item for the company in making its decision to change to this new equipment. The cleanliness factor, no more important anywhere in the industry than in glassine and greaseproof papers, was simplified because dirty beaters no longer had to be methodically cleaned up.

A more complete discussion of the Morden Stock Makers is to be found in the article which follows this one, written by the inventor himself, C. W. Morden, president of the Morden Machines Co., Portland, Ore (Pacific Building).

All of the equipment used in connection with "The Big Swede" was selected by Mr. Becker and his associates with special thought for the objectinonableness of any dirt in their production and of other special needs.

The Bird Centrifiners and Bird Screen shown in accompanying photographs also "team up" to trap dirt in the stock before it flows onto the wire. Twelve Centrifiners surround two collector boxes from which stock goes to the screen battery. Forty-two Vickery Hi-Angle Doctors keep insulating scale and fuzz off the dryer surface of "The Big Swede." Vickery Hi-Flex Doctors are on the clean, bright rolls of the giant calender stacks all the time and automatically provide uniform minimum pressure, keeping paper free of calender marks.

At the dry end and calender section of "The Big Swede" are a new center wind reel made by Beloit, shown in a picture with this article, a Westinghouse tension control and Cameron rewinder Type 20, a big, heavy model.

Interesting windows in "The Big Swede" room are made of glass blocks, diffusing light at different angles for greatest efficiency of light. Some of the glass blocks diffuse upward, others downward and at other angles. Fresh air is thrown in front of the machines by

THEIR SONS--Inspiration for Rhinelander's War Effort

● President Folke Becker and other top men in his Rhinelander Paper Co. organization are well represented in the armed services by their sons—and that's something else for them to think of in stretching every piece of equipment in their plant to get out the protective papers needed to ship foods and other supplies overseas.

Mr. Becker's son, Second Lieut. John Becker is in the U. S. Army Air Corps, an armament officer, presently stationed in Florida.

Operating Manager "Stub" Johnson's son, Lt. Charles Johnson, is an Army Air Corps pilot.

Paper Mill Superintednent Lewis Dozier's son, Capt. Richard Dozier, was in action with a tank battalion in the South Pacific, was wounded and is still in that war theater.

Director of Industrial Relations Louis McNamara has a boy, Ensign M. J. McNamara, who is on duty somewhere in the Central Pacific.

the latest ventilation apparatus of J. O. Ross Engineering Corp.

Power Plant Improved

● The dryers, of course, are hooded. Three separate hoods are used —36 ft. 60½ feet and 33½ ft.— because of the extreme length of the machine. Warm, moisture laden air is drawn through ducts leading outdoors and passing through a Ross Briner economizer en route. At the economizer the exhaust air warms the incoming air sufficiently to prevent condensation on the ceiling. Part of the warm air is piped below the machine to help dry the felts. A single degree drop in the exhaust air causes an increase of five to ten degrees in incoming air, because as the exhaust air falls below the dew point, the condensing vapor releases latent heat to warm the incoming air. A power saving is effected by the recovery of heat.

The power plant improvements already mentioned, which save 20 tons a day in coal, are a spectacular result of engineering and careful planning. Including the new 100,000 lb. per hour stoker-fed boiler, the steam needs of the mill are now provided by four steam generators, meeting a normal demand of well over 200,000 lbs. per hour. Ordinarily boilers are on the line six or eight weeks, the mill operating 24 hours a day for six and sometimes seven days a week. With all improvements, the effiiciency of the steam generating equipment averages 82.5 per cent.

Over several years, steam costs have been brought down to 35 cents per 1,000 lbs. and kw-hour costs have been reduced substantially.

Because the mill specializes in glassine and greaseproof papers, enormous quantities of hot water —some 1,320,000 gallons daily—are used, to keep materials at correct temperature during the papermaking processes. For all purposes a total of 13,000,000 gallons of filtered water are used daily. Naturally, the need for large quantities of hot water provide an opportunity for extensive heat recovery.

"The Big Swede" itself is driven directly by a 550 hp. turbine exhausting at ten pounds pressure to provide process steam needed for the big machine. The new No. 4 boiler is the same four drum Stirling type as the other three boilers at Rhinelander. Boilers were operated at 250 per cent of rating to meet normal average load around 184,000 lbs. of steam per hour. The new paper machine, however, raised the steam load to over 200,000 lbs. per hour.

Coal is delivered by boat to a dock on Lake Michigan and the type is eastern 1½ in. screening. The bulk of fuel is stored at the dock and delivered to Rhinelander by rail as needed.

Wood Supply—Forest Policy

● The story of Rhinelander would not be complete without a discussion of that all-important material—wood supply—and also of the leading role Mr. Becker has taken in reforestation activities in Wisconsin.

As was stated earlier in this article there were once 22 lumber mills at Rhinelander. Today there is just one veneer factory and a hardwood flooring factory besides the paper mill.

But the paper mill has saved and perpetuated the life of Rhinelander —just as paper mills with really successful long-term wood programs has saved many other North

KEY MEN OF THE RHINELANDER ORGANIZATION (left to right): LEWIS DOZIER, Paper Mill Supt.; LOUIS McNAMARA, Director of Industrial Relations; F. W. JOHNSON, Operating Mgr. and Chief Engineer; SIGGE EKMAN, Sulphite Supt.; GUSTAV BECKER, Converting Plant Supt.; KARL W. FRIES, Technical Director.

Below are views of the mill and the surrounding country. On left is a view from the bridge on the road connecting the mill and the town of Rhinelander. On right is a picture taken from window of one of the mill buildings, looking northward over the Wisconsin River headwaters and showing wood piles.–All pictures by Pacific PULP & PAPER INDUSTRY.

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American communities. Half of the population of 8,000 in Rhinelander is dependent on the Rhinelander Paper Co. (The mill has 800 employes). There is a printing establishment in the city, for example, which is dependent on the paper mill.

Rhinelander Paper Co. uses principally spruce, about 200 cords a day. About 50 per cent of the supply now comes from the company's own operations in Canada, the remainder from Wisconsin, Michigan and Minnesota.

The company's operations are on the Algoma Central, 300 miles north of Sault Ste. Marie, in the Hearst district of Ontario. Here Rhinelander acquired joint cutting rights with Marathon Corp. over a forested area of 8,000 square miles. It is a supply that is calculated to keep the company operating for 50 years at least. But reforestation is now a settled policy of those two companies and everywhere possible in their part of the continent they are initiating and cooperating in programs for perpetual wood supplies.

Ever since he came to Rhinelander, Mr. Becker has been a leader in this field. Logged-off barren lands of northern Wisconsin, where trees once grew and where farms later languished, were a constant inspiration to him to keep up activity in forestry.

Mr. Becker is president of "Trees for Tomorrow, Inc.," a non-profit, semi-public organization of the Wisconsin Valley paper making industry, founded on Feb. 29 of this year, aiming to support and advance reforestation of Northern Wisconsin.

Mr. Becker also is the chairman for Wisconsin of the American Paper & Pulp Association activities in reforestation, sponsoring "Industrial Forests" in the state, similar to what are called "Tree Farms" in the west and south.

School, community and county forests are sponsored by the "Trees for Tomorrow" organization, financed by the nine mills in the Wisconsin River Valley, each contributing according to the amount of cordage it consumes.

One of the ideas developed by Mr. Becker and his associates was to equip sports fishermen with tree plants which they carry in their creels and plant in river bottoms.

Youngsters were carried in fleets of trucks to planting areas, scholarships were offered as prizes and in many other ways a movement to make Northern Wisconsin green again has been wisely and energetically fostered, with Mr. Becker leading the movement.

Continuous Treatment Stock Preparation

By C. W. MORDEN
President, Morden Machines Co., Portland, Ore.

● Continuous treatment stock preparation — the distinctive type with which I am intimately acquainted— is a Pacific Coast development, dating back to the early thirties (an earlier type machine).

Personally, I like the term "Production Line Operation" to define this continuous flow method of treatment, particularly when the installation is such that a battery of these pulp treating units is used. This serves to contrast this new method with the various batching methods of treament which are used wih other equipment. Also, as I shall attempt to show, this new method reflects the efficient production line methods of large scale American industry. In passing, it can be said that the paper machine itself may be considered an instance of this type of production.

Modern machine tool usage, however, happens to serve even better for purpose of illustration. An instance is the use of a battery of machine tools which recently came to my attention in an illustrated article referring to the modern tool equipment in one of this country's large war plants. This was a production line assembly of similar machine tools, arranged alongside a conveyor, on which parts requiring a number of machining operations are moved. As they come to each machine tool, it automatically performs its particular operation on the part and then subsequent machine tools, in like manner, add their type of work to make up the total machine work required. If we substitute Stock-Maker pulp treating machines for the machine tool units just described and pulp fiber for the parts processed in the above illustration, we have an indication of the principle employed in "Production Line Operation" of Stock-Maker units.

In this, the pulp fibers, in slush form, are pumped thru a battery of Stock-Makers. Each of these units, and please note this particularly, may be so controlled as to give not only the required amount of treatment, but also to govern the type of treatment applied so as to make the overall result that which is needed for the grade of paper being made.

For example, one unit may be set to give a hydrating type of treatment, for which the stock is recirculated inside the machine as it is treated. The next unit may be set for more of a refining type of treatment, for which recirculation inside the machine is cut off by means of the machine's controls. Thus an overall treatment is obtained which is a combination of the hydrating and refinining actions which we usually associate with the use of beaters and jordans in their preparation of paper stock. Readily operated controls, built into the machines, regulate the type of treatment, the tonnage through-put, and the amount of work done on the fibers.

Discussion of Illustrations

● With this by way of introduction to the subject, let's turn to the consideration of some pictures, which will show the makeup of these new pulp-treating machines and their appearance in production line type of installations.

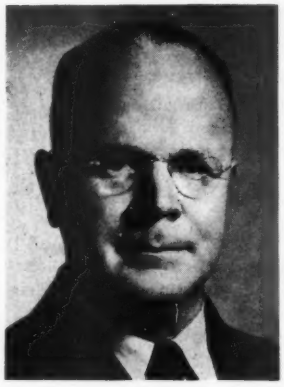
View No. 1 shows the appearance of the machine. The stock inlet is shown at the lower right and the outlet at the upper left. The handwheel is part of a precision means of setting the bed plate shell on the inside of the machine, with reference to the rotor. This controls the bar pressure applied during treatment and resultantly the amount of work done. The left-hand one of the two control levers regulates the recirculation of stock in the machine during its treatment. This may be varied as required, or cut off entirely. The second control lever regulates the tonnage output.

The construction is compact and rugged and the design is such as to particularly adapt it for multi-unit use of these units in production line operation. Inlet and outlet connections are in the same vertical plane, and may be made either right-hand or left-hand. This contributes to a clean-cut job of piping, when inter-connecting the units as is illustrated in View No. 2.

This shows three Mordens, as the mill operators are inclined to call these machines, in one of the various production line hookups that are used with them. Flow controlling pipe

Praises Cooperation of Mills

Mr. Morden, who has had many years' experience in both the mill and the equipment field, credits cooperation between millmen and machinery builders for much of the progress of the industry in the past two decades.



C. W. MORDEN, inventor of the Morden Stock-Maker and author of this article, based on a talk before Papermakers and Associates of Southern California, in Los Angeles, Oct. 19.

"I refer to the pleasant, widespread cooperative relationship throughout this industry — from coast to coast," he said. "Perhaps this is unique in any industry, on such a scale. Millmen and machinery builders, working together, have brought about many successful developments, improving pulp and paper quality, lowering costs and increasing production.

"An example," he said, "is the continuous treatment method of stock preparation. Pacific Coast mills have had an important part in this, which I thankfully acknowledge. To cite one instance, the first extensive comparative tests of our present modern machine were made at the Camas, Wash., plant of Crown Zellerbach Corp. The performance data thus obtained has played an important part in guiding the proper application of these units in subsequent installations.

"Like acknowledgement is due the Rhinelander Paper Co. In this case, for the part they had in establishing the best methods of use of this equipment in production line type of operation."

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manifolds connect these units and with their three-way valves supplement the machine's controls in routing and controlling the flow of stock as it is being treated. Thus all three machines may be set for hydrating, beater type treatment, or for refining treatment, or both of these may be combined, in continuous sequence. Furthermore, with this piping arrangement, the first two machines, those on the left, may be operated either in series or in parallel and either one may be cut out of service by means of the three-way valves.

This gives a very flexible arrangement, which permits obtaining practically any type of treatment desired. All piping is in the same vertical plane. All controls are readily accessible from the control end of the machines and the whole job presents a clean-cut, mechanically good, appearance. Stock entrance is at the lower left and the outlet at the extreme right.

A comment at this point may interest you. This has reference to the provision for parallel operation of the first two machines which has just been referred to. This offers the opportunity for differently treating various portions of the total stock and then combining these portions for treatment in the last machine. For illustration, a small portion may be superhydrated, say 10% of the total, and the balance more lightly treated, or, for that matter, differently treated, the two portions then coming together for combined treatment in the last unit. This is a method of stock treatment justifying more study than has yet been given it.

Now, turning to the makeup of the machines which we are discussing, View No. 3 shows a cut-away view which illustrates how the treatment is accomplished. Here, for purpose of condensation, I quote from our folder "Plan For Modern Stock Preparation":

"Follow through with the arrows to get the inside picture. Entrance is at lower right, thence through the machine's charging and cycling unit, inside the rotor, which builds up the pressure, and then on through to the bar type treating elements surrounding the rotor, then counter-flow between these treating elements for sealed pressure treatment and into the flow controller, upper right.

"This dual valve flow controller, with one of its two manual controls, regulates the tonnage output. With the other it regulates the stock flow inside the machine, to correspond to the type of treatment required—controlled flow recirculation for hydration and various blended beating treatments—single pass (non-recirculating) treatment for refining. The Stock-Maker's third control, the handwheel, regulates the bar pressure applied in these various treatments. This is accomplished by moving the bed plate shell which surrounds the rotor inside the machine.

"There is nothing complicated or tricky about it. Instead, it is the Stock-Maker's new adaptations of the best time-proved methods long used in the industry—which, in combination with distinctly new features, work together to produce its outstanding performance. The employment of recirculation is obviously an adaptation from the beater, and in the bar type treating elements there are adaptations from both beaters and jordans. The practical pattern of the Stock-Maker design has been shaped by a lifetime of papermill experience."

Sealed Pressure Treatment

● Now, let me call your attention in more detail to some of the things which contribute to the results with this machine. These have been referred to in the foregoing quotation with only three words—the words "sealed pressure treatment." This reference has two implications. The first of these is in relation to the hydrostatic pressure characteristics of the machine. The second, is to the bar pressure that may be applied to the fibers during their treatment. These two, in turn, are to some extent interrelated.

Let's consider first the hydrostatic pressure characteristics and their relation to the stock treatment. The stock enters at approximately 25 lbs. pressure, being delivered by centrifugal type stock pump. In passing through the interior of the machine's rotor, its blading steps up this pressure to between 55 and 60 lbs. at the point where the stock leaves the interior of the rotor at the large diameter end. This pressure is utilized to force the stock in counterflow direction between the bars of the treating elements, the rotor bars of which tend to set up a bucking pressure against the stock, as it is forced through; this is one factor contributing to the sealing of the stock between the treating elements during its processing.

This bucking pressure reduces the overall hydrostatic pressure on the stock at the point where it enters the dual valve flow controller, upper right in the cut-away view, to a point where the potential pressure in this valve chamber is in the neighborhood of 6 lbs. greater than the 25 lbs. pressure at the inlet of the machine. It is this 6 lb. potential pressure difference which affects the transfer of stock from the flow controller back into the inlet chamber of the machine when the flow controller is set for recirculating type treatment. Now, if we will consider what is happening to stock as it recirculates in the machine, insofar as the hydrostatic pressures applied to it are concerned, we may see, from the above description, that the stock is alternately subjected to higher and lower hydrostatic pressures. Higher pressure is at the point where it enters the treating elements and the lower pressure is at the point where it leaves them.

I have sometimes referred to this alternation of hydrostatic pressure as "sponge action", namely, an alternating squeeze and let-go applied in this case to the fiber, much as one would apply pressure to a sponge in order to make it take up water.

With reference then to hydrostatic pressure, we have seen that this is, in the first place, a high pressure within the machine. and in the second place, that it may be made to alternate in its pressure characteristic from a higher to a lower pressure, as the fibers are being treated. This of itself has an effect on the treatment.

Now, let us turn to a consideration of some of the factors relating to the application of bar pressure, in contrast to hydrostatic pressure, in the stock treatment. In the first place, it is essential to apply relatively high bar pressure, in order to efficiently and effectively accomplish continuous treatment. This is particularly true in cases where the stock calls for a heavy treatment. In this connection, the importance of maintaining the fiber film between the bar faces of the treating elements is evident. One way to get this picture is to consider this as the lubricating film between the faces of the rotating and stationary bars. Obviously this has to be maintained, first, from the standpoint of the proper work being done on the fiber, and secondly, to avoid bar-to-bar contact and resulting wear.

The machine we are discussing is designed for high bar pressure treatment, where the nature of the stock is such as to require this. If I have made myself clear, you will readily appreciate another reason why the counter-flow principle is

used in Stock-Maker treatment. The bucking pressure, as earlier referred to, which is thus set up, tends to hold the fibers between the treating elements and thus contributes to the maintenance of the fiber film betwen the bar faces of these elements. Another way of presenting this is to consider that in the bed plate shell of the Stock-Maker we have an element similar in some respects to a funnel. With a funnel liquid is poured in from the large end to concentrate it—not from the small end.

This is not the whole of the story, however. Tied in with the principle just described there has to be the proper makeup and arrangement of the treating surfaces, in order to correctly present the fibers to these surfaces and insure their proper treatment. The bed plate shell and rotor in the machine are both one-piece, heat-treated, alloy steel members. This one-piece construction permits accuracy of machining of these parts and contributes to the maintenance of this accuracy of relation between the treating surfaces of the filling members throughout their life. Still other interesting mechanical features contribute to the end results, three-point, flexible mounting for the bed plate shell, for example, and the two means provided for keeping dirt and tramp metal from passing through the treating elements with resultant damage to their surface. Time will not be taken here, however, for further comments along this line.

Types of Installations

● Now, we turn to the consideration of various types of installations of these machines. **View No. 4** shows a production line hookup of three Stock-Maker Units, in the foreground, with a pulping and mixing unit in the background, which, together, comprise the complete stock preparation equipment on one of the six Stock-Maker-equipped paper machines in the Rhinelander Paper Co. mill at Rhinelander, Wis. No beaters or jordans are used on this machine and the illustration serves to quite clearly show the compact, well-made installation of Stock-Makers which treats all the stock for this machine.

The whole hookup is a very simple one. Slushed and mixed pulp from the pulper unit drops into a drop chest in the basement; from this chest it is pumped through a consistency regulator into a second chest, which is in reality the machine chest, and from this a centrifugal stock pump delivers it to the Stock-Maker units and from them direct to the paper machine, through a stuff box in the regular way. That's all there is to it.

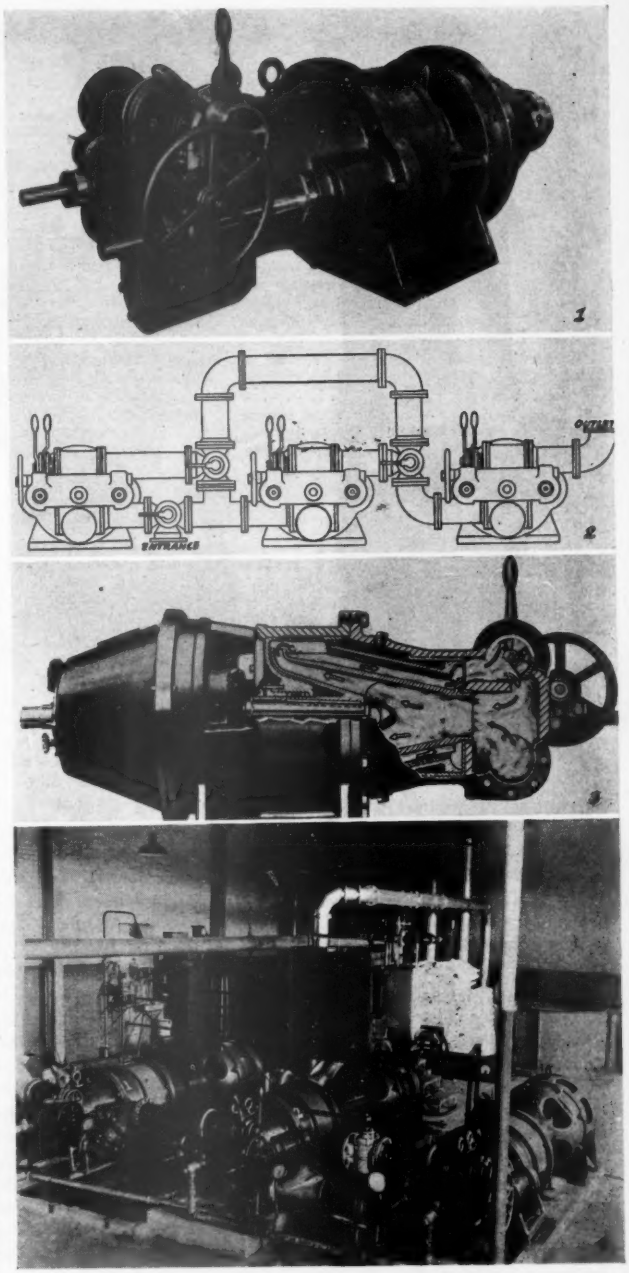
In this simple way the stock preparation is put into direct step with the paper machine, the stock treatment and the making of the paper being one continuous operation. The stock treatment is under ready control, which permits practically instant adjustment of treatment to properly meet the paper machine's requirements and the requirements of the paper being made. With this adjustment once made there is a resulting uniformity of treatment and uniformity of paper quality, which is difficult to obtain with batching methods of treatment, due to their almost unavoidable variations in treatment from batch to batch.

With this continuous treatment, once the controls are properly set, about all that can adversely affect the uniformity of paper strength quality, insofar as this is affected by the stock, are variations in pulp quality. This points to the desirability, in a properly controlled pulp and paper mill operation, of getting a check on the pulp quality just as soon after the pulp is made as possible. To facilitate this, we build a high-speed, vertical type laboratory unit for the treatment of pulp samples. With this, in the matter of three or four minutes, rather than an hour or more by ordinary methods, pulp samples may be treated to maximum strength and subsequently tested. This provides a mill-control type of pulp testing that materially assists in maintaining uniformity of both the pulp quality and paper quality. Pulp tests by this method of treatment are quite an accurate indicator of the paper strength to be expected. Its strength readings are much closer to the actual paper strength figures than by any other method.

View No. 5 shows this Stock-Maker High-Speed, Pulp-Treating Unit, with its built-in, direct-connected motor, the sampling pump which is used to draw samples from it during treatment, and the charging pan for introducing pulp into the Unit.

View No. 6 shows the inside view of the treating element of this unit. This consists of a floating rotor of conical shape, surrounded by a bed plate shell, around which the pulp circulates in the course of its treatment, as is shown in the illustration.

One large Pacific Coast mill, which lays special emphasis on quality control, uses a unit of this type in 24-hour service. With it they test the pulp as soon after it is made as possible and report the results immediately to the pulp mill and paper

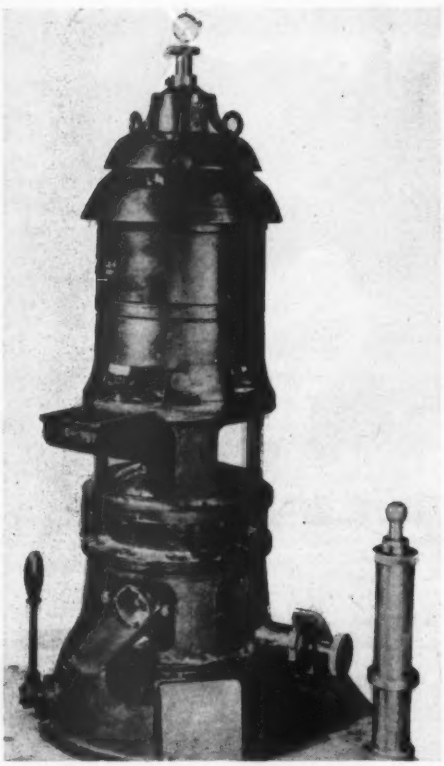


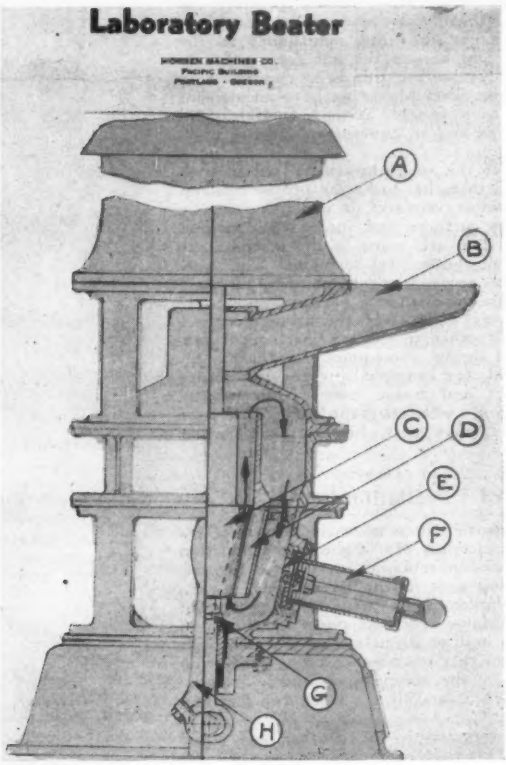
VIEW 1. THE MORDEN STOCK-MAKER.
VIEW 2. DIAGRAM SHOWING PRODUCTION LINE HOOK-UP.
VIEW 3. CUTAWAY VIEW OF STOCK-MAKER.
VIEW 4. PRODUCTION LINE INSTALLATION OF THREE STOCK-MAKERS AT RHINELANDER PAPER CO.

mill superintendents for their guidance in production control.

Another illustration of production line use of commercial size Stock-Maker Units, is shown on Page 13. This shows the Rhinelander Paper Co.'s installation of these units on their so-called "Big Swede" paper machine. The hookup in this case is the same as that already described, with the exception that two banks, of three Stock-Maker Units each, are employed. Each bank treats half of the total stock on its way to the stuff box ahead of the paper machine, from which it goes directly to the paper machine itself.

To those of you who may be familiar with the exacting treatment requirements of glassine and greaseproof types of paper, this installation should prove interesting as evidence





VIEW 5 (left): MORDEN FAST TREATMENT LABORATORY UNIT FOR MILL CONTROL TESTING.

VIEW 6 (right): DIAGRAM SHOWS OPERATION OF LABORATORY UNIT.

of the fact that some long-held ideas with relation to stock preparation have now lost their validity in the light of Rhinelander's results with this method of continuous treatment. Among these ideas are those insisting that a long time factor is essential; in other words, that a long batching treatment is required to make glassine and greaseproof papers. Another is that stone-roll beater tackle is practically essential for the treatment of stock for such papers. Still another is in relation to the large power requirements necessary for the treatment of these grades. This will have to be materially altered as the actual power requirement is considerably lower with this continuous treatment compared with what it was before. A final idea that has to go by the board is that excessive heating of the stock is a necessary evil as this results from the long batch treatment required on these grades by other methods. There is no excessive heating with the continuous type treatment we are here discussing.

Efficient, readily-controllable continuous treatment with Stock-Maker Units gave Rhinelander the answer to their search and equipment trials over a number of years, directed toward finding a better method of preparing their stock, than they formerly had with beaters and jordans. Today Rhinelander have all six of their paper machines equipped with Stock-Maker Units and their installation has created wide interest as word of its results has spread through the industry.

Diversified Applications

● Here let me correct any wrong impression that my words up to this point may have created. You may readily have inferred that Stock-Maker treatment is only suited to a paper grade such as I have been discussing up to this point. This is not correct. Stock-Maker units are today processing stock for sulphite papers in tissue, wrapping, and specialty grades, kraft paper in bag, wrapping and specialties, together with rag-content, bond writings, glassine, and greaseproof, and other high quality papers. There are few if any grades for which Stock-Maker treatment is not suitable, either for all or for some part of the treatment. It has to be remembered in this connection that this equipment was only on the market for a three-year period prior to the start of war restrictions. Taking this into account, the range of grades on which it is already used is an excellent indication of its rapid acceptance and use by the industry as a whole, some instances of which I shall now refer to.

One Pacific Coast mill is making sulphite papers in bag, butcher and other wrapping grades, using Stock-Makers in production line hookup for this on two paper machines. No beaters or jordans are used. In another Pacific Coast mill, there are two paper machines running sulphite tissue grades. Stock-Maker treatment is used in connection with jordan treatment in this case and beaters have been eliminated. In another Pacific Coast mill the Stock-Makers are used between beaters and jordans; in this case for the treatment of kraft papers. In still another western mill a single Stock-Maker Unit is used for the pre-treatment of sulphite pulp ahead of beaters; in this case pretreating the pulp for two paper machines. The effect of this installation has been to avoid the installation of additional beaters and the extension of the beater room, when the plant's tonnage was stepped up and not only this, for it also made possible the shutting down of two or more of the bearers previously used, saved power and improved the output quality.

These Pacific Coast installations have their counterparts in mills clear across the country. One of the most unusual installations of this equipment is in a mill outside of this country. Here a battery of Stock-Maker Units are so installed that various types of pulp, including kraft and sulphite, are separately treated in a central stock preparation department, built and equipped according to the interesting plan developed by this mill. These separately treated pulps are later combined, as may be required, to make up the mixed furnishes on which the various paper machines in this mill operate. I don't happen to know of any other installation in which the stock preparation is handled in this way. It seems to fit the particular requirements of this mill exceptionally well and I mention it here simply to further indicate the variety of uses to which these pulp-treating units are put.

Industry Leaders "Hopeful" of Good Results After Second Meeting With Dept. of Commerce

● A second meeting of the newly formed Pulp & Paper Council to the U. S. Department of Commerce was held recently, following the original meeting held at Washington in June. While no definitely specific program has yet been arrived at, industry leaders and Department of Commerce officials generally expressed themselves as "very hopeful" that through the new mechanism the viewpoint of the industry with respect to its welfare will be considered in the formulation of government policies.

Announcement of the first meeting came from Mr. E. W. Tinker, Executive Secretary of the American Paper and Pulp Association, and it was termed at that time "an innovation in the way of government - industry relationship." Since the second meeting several members of the industry have expressed themselves to the Eastern Editor of Pacific PULP & PAPER INDUSTRY as well satisfied with prospects of the new Council.

It was recognized in the discussions that the Council should obtain an understanding in the industry of governmental processes and procedures, departmental and agency jurisdictions and relationship, in order that future consultations might be held in the light of the fullest knowledge of these matters on the part of the industry and in order that matters dealt with in such consultations might result in productive cooperation. To that end a subcommittee, consisting of Roy K. Ferguson (St. Regis Paper Co.); Amor Hollingworth (Penobscot Chemical Fibre Co.); J. L. Riegel (Riegel Paper Corp.), and J. D. Zink (Strathmore Paper Co.) were appointed to consult with members designated by the Department of Commerce.

Of immediate concern to the industry is the possible formation of international committees or commissions for the purpose of discussing and formulating plicies with respect to post-war international trade relations. It was pointed out that in the past in matters of this kind foreign governments have sought advice and counsel from industries in their country. It would be very desirable that U. S. representatives have similar access to the industries in this country.

TAPPI Sets New York Meeting for Feb. 19; APPA Convention Off, But Business Sessions Planned

● "For 1945, only such business meetings will be held as are necessary to the orderly conduct of the industry's business," recently anounced E. W. Tinker, executive secretary of the American PAPER . PULP Association, 122 East 42nd Street, New York. Normally an annual convention is held each February in New York City.

Due to obvious war-time conditions obtaining in hotels and transportation systems, and also because of the immediate problems of the industry in assisting in the prosecution of the war, it was the concensus that the Annual Convention be abolished for 1945. The smaller business meetings, involving considerable less personnel than the regular convention, will be directed to "matters pertaining to the industry's problems in connection with the war effort," Mr. Tinker said.

However, the annual meeting of TAPPI is definitely scheduled for Feb. 19-22, at the Commodore Hotel, New York.

The annual joint meeting of the Michigan division of the American Pulp & Paper Mill Superintendents, and the Kalamazoo Valley section of TAPPI, at Kalamazoo, Mich., will be held Jan. 11. Mr. Tinker will be guest speaker.

A sectional meeting of the National Stream Improvement Council was to be held with members of the Southern industry on Dec. 13, at the Hotel Roosevelt, New Orleans.

W. B. SCOULAR who was recently appointed Consulting Engineer for Powell River Co., at the Vancouver office. Mr. Scoular was formerly with Consolidated Paper Corp., although for the past two or three years he was with Dominion Bridge Co. as Chief Engineer.

Canadian Technical Section To Meet in Montreal

● The Canadian Pulp & Paper Association's Technical Section will hold its annual meeting Jan. 24-26 in Mount Royal Hotel, Montreal.

Machinery Mfgrs. Invited To Aid Dutch Government

● Reports reaching Netherlands officials in Washington and London indicate the Nazis have largely wrecked the paper industry of the Netherlands. It is expected that the task of reconstruction will be huge. To facilitate proper reconstruction, an Economic, Financial and Shipping Mission of the Netherlands is collecting all technical information dealing with phases of the paper industry.

All supplies of paper mlll equipment will be asked to supply information concerning their products.

The Paper Industry Division of the Economic, Financial and Shipping Mission of the Kingdom of the Netherlands is at 220 East 42nd St., New York City, (Mr. Eli de Vries, Advisor).

It's "Grandpa Opie" Hayes

● It's "Grandpa Opie" Hayes now. E. J. Hayes, office manager, St. Regis Paper Co., Tacoma, Wash., proudly announced arrival Oct. 29 of Ruth Melandy, daughter of Lieut. James R. Hayes, young veteran of the African war, and Mrs. Hayes.

CARLO VICARIO, of Nash Engineering Co., South Norwalk, Conn., who has been assigned to a special position in which he devotes his abilities to adapting of newly developed Nash equipment to a number of industries. Mr. Vicario, who had long been in charge of pulp and paper activities for Nash, is cooperating with the creative engineers of that company in several fields, particularly in petroleum, chemicals, rubber and food and beverage industries, as well as in pulp and paper. CARLETON L. CLARK formally succeeded Mr. Vicario as manager of the pulp and paper division, headquarters, Graybar Bldg., New York, on Aug. 1.

Howard Smith Mills Soon to Make Plastics

● Production of plastics at the new plant of Howard Smith Paper Mills in Quebec will probably commence within a couple of months, despite delays in delivery of construction materials.

The new plant will be the first of its type operated by a pulp and paper organization in Canada. Plastics sheets, designed to replace metal for certain purposes are to be made from chemicals derived from lignin. Initial production will be on a limited basis, but plans for expansion are being made depending on market requirements.

Demand for the company's regular products continues unabated, and operations of the pulp and paper mills are on a 24-hour basis.

One Mill Makes Enough Vanillin for Canada

● Howard Smith Paper Mills, Quebec, through its wholly owned subsidiary, Howard Smith Chemicals, Ltd., is now making war scarce vanillin, a fine chemical used as a base for flavoring extract, in sufficient quantity for all Canada's requirements. In addition, the company is able to export a certain amount to the United Kingdom.

New Method to Remove Chipper Knives

● A speedier and safer method of removing chipper knives from chipper discs is reported to have been developed by D. J. Murray Manufacturing Co., Wausau, Wis. The new method utilizes a hydraulic jack or similar appliance to push the knife out of the knife pocket. After the knife has been ejected a sufficient distance, a knife removal tong is attached to the knife's outside edges. The knife is then removed from the slot and placed on a convenient carrier or container.

Elwell-Parker Safety Rules

● The Elwell-Parker Electric Co. offers free a handy small four-page cardboard folder giving a set of safety rules for the operation of power industrial trucks. The safety rules are in a form easily carried by the operators. Copies may be obtained on request from company offices at 4205 St. Clair Ave., Cleveland, O.

Paper Men Head New Group

● Columbia Empire Industries. Inc., has expanded to include representatives from virtually the entire state of Oregon, as well as Southwestern Washington, for the purpose of pushing the growth of industries. Officers are: President, Thomas C. Young, Pacific Roofing Co., Portland; first vice president, Lloyd Riches, Western Paper Converting Co.. Salem; second vice president, P. E. Hodel, Huntington Rubber Mills, Portland; secretary-treasurer. J. A. Brewster, Chase Bag Co.. Portland. Among directors are H. E. Morgan, Weyerhaeuser Timber Co. and Iving T Rau, St Helens Pulp & Paper Co.

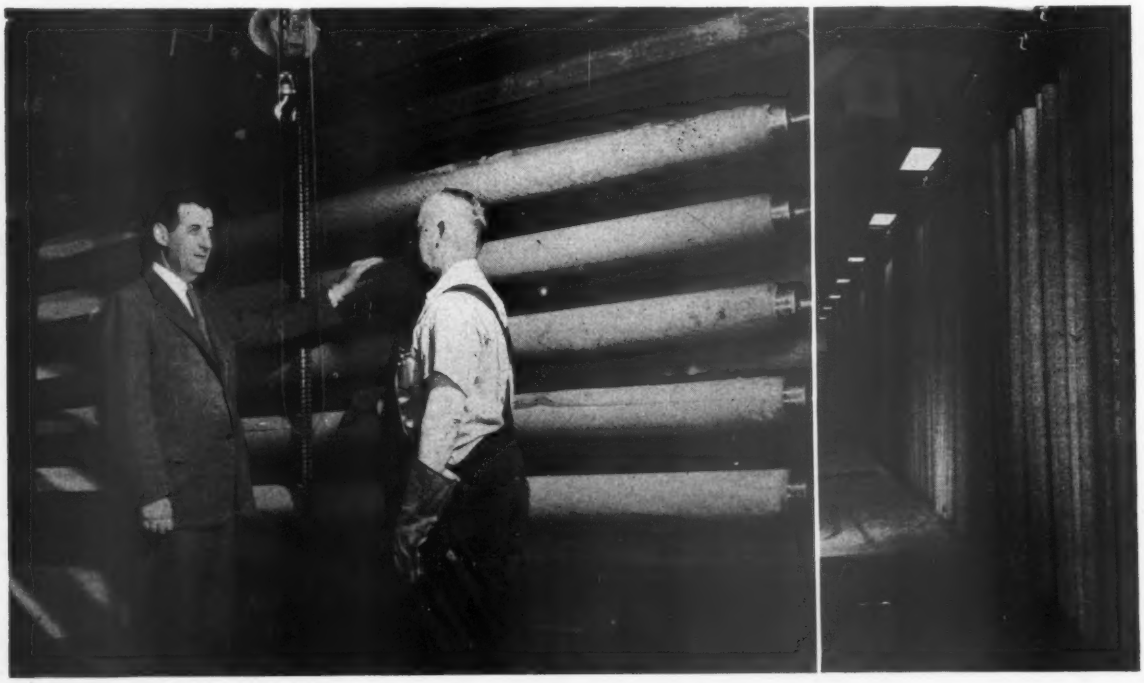
The Story of the Flying Bazookas

Back in the days when hedgerows were being featured in communiques and when the American Third Army was shifting into high gear down the Cherbourg Peninsula, a handful of Germans got the surprise of their lives.

Two German cargo trucks were streaking down a highway several miles ahead of an American tank column. An innocent-looking Piper Cub artillery spotter plane from the 4th Armored Division cruised above them. The Germans, having no fear of an unarmed spotter plane, raced on. But they didn't race far.

A rocket which had been fired from the plane hit both trucks, setting one on fire. The Germans fled in panic to the woods. Later, American tahks captured the soldiers and their deserted vehicles.

No longer does the enemy disregard the Grasshopper plane. It has beocme a definite menace. Armed with rocket-firing bazooka tubes beneath its wings, the once-harmless Army Piper Cub has become little sister to the AAF's Thunderbolt and RAF's Typhoon, which



RESIN-PAPER GUNS USED BY "FLYING ARTILLERY."

HERE ARE SHOWN BARRELS OF THE FLYING BAZOOKAS which the U. S. Army Air Forces have installed on Thunderbolt and other fighter planes. These gun barrels—believe it or not—are a resin-treated paper plastic developed by General Electric's Plastics Division at Pittsfield, Mass., and Ecusta Paper Corp., Hammermill Paper Co. and the Byron Weston Co. Entire weapon is made by G-E in Lowell, Mass.

The plastic paper barrel has to be fire-resistant to withstand the fiery blast of the rocket missile which is launched from the gun. The kind of resin used was not revealed.

Left—Flying bazooka barrels come out of drying oven. Right—A forest of the bazooka barrels being dried by hanging from a conveyor belt.

Planes carrying these guns are called "Flying Artillery." They destroyed Germany's motorized columns in France. Bazookas are mounted under each plane wing, three in a cluster. Firing is controlled by a pilot and all six may be fired at once or individually. The installation weighs about 450 pounds. These barrel walls are one-fourth of an inch thick.

By far the largest amount of pulp for these bazooka launching casings was made by the Ecusta Paper Corp., Pisgah Forest, N. C., which in 1939 revolutionized the cigarette paper industry by successfully substituting American seed flax as the raw material instead of the linen rags used generally up to that time. Ecusta now makes 70% of U. S. cigarette papers by a special process. Ecusta used long fiber, high strength cotton combers, however, to make the special pulp for the bazooka casings. This pulp from the Ecusta mill was made by Hammermill Paper Co., Erie, Pa., into a heavy-weight paper sheet which General Electric Co. fabricated into tubes. Some of the pioneer work of this project was done by the Bryon Weston Co., Dalton, Mass.

daily are blasting enemy installations with their high-explosive rockets.

Lieutenants Harley Merrick, Richmond, Calif., and Roy Carson, San Francisco, Calif., two pilots whose job it is to adjust artillery fire from the air, dreamed up the novel weapon during training in England.

We figured we ought to have something to shoot," recalled Lt. Merrick. "And since a machine gun was too heavy, we got four bazookas from an Ordnance salvage depot and went to work."

The bazookas were stripped of sight, grip, trigger, bracket, and flash deflector, only the bare tube remaining. One was attached to the underside of both wings and an electric trigger was rigged in the cockpit, enabling the pilot to fire the rockets singly or simultaneously.

"Fearing the blast might set fire to the plane's fabric," said Lt. Carson, "we tried out the rig on the ground first. It worked—so we took our ships upstairs and shot at some old British tanks."

"The tanks took a beating and we didn't," added Merrick, "so we figured we had something."

Maj. Charles M. Carpenter, Moline, Ill., has three bazookas beneath both wings of his Cub, "Rosie the Rocketer." Maj. Carpenter scored a direct hit on a German Mark IV medium tank. Ground troops who have watched the major and "Rosie the Rocketer" operate, credit him with three others.

International Paper Co.'s 9-Month Period Profits

● International Paper Co., through Richard J. Cullen, chairman, announces net profit for the first nine months of 1944 of $6,548,626, just slightly off the $6,662,474 figure for the corresponding 1943 period.

Gross sales were up to $173,995,224 from $158,780,385 but increases in costs, taxes, etc., left net profit a little below the 1943 figure.

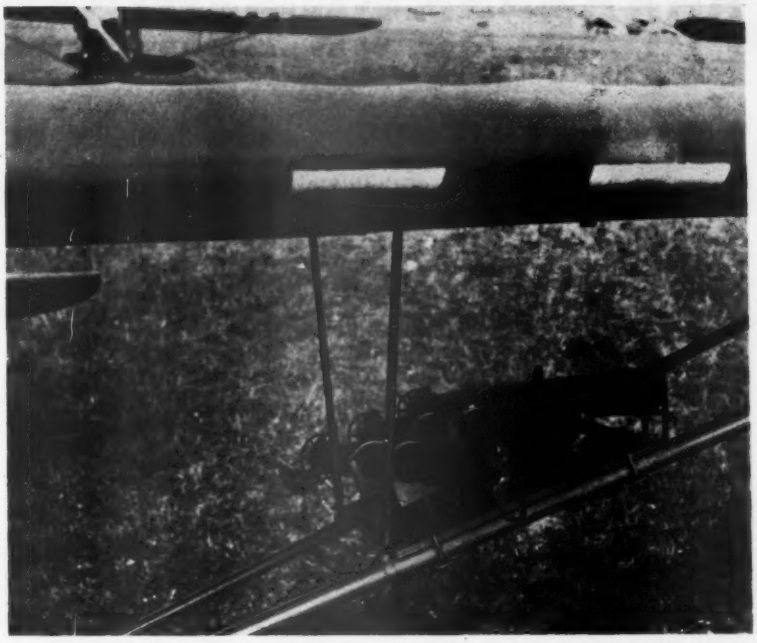
I. P.'s Southern Kraft Division is outstanding in the south, with eight operations ranging from the biggest and one of the most modern board mills in the world at Georgetown, S. C., to the newest southern bleach plant in the south, located in Louisiana, and with vast timber holdings, especially in Arkansas, to back the mills in the south-central belt. Four of I. P.'s 18 northern U. S. mills are idle. Canadian I. P. operates seven mills.

Chief Industrial Engineer Named for Crown-Z

● As part of its long range planning, the Crown Zellerbach Corp. has created on its headquarters executive staff the position of chief industrial engineer, and has engaged Ben F. Warren, formerly chief industrial engineer for the Columbia Steel Co. to fill the position.

Mr. Warren will assist the resident managers in organizing permanent engineering groups at the several operations, and will act as consultant on manufacturing economics.

He is a graduate of the University of California, 1931; and Stanford University, 1935. He is assistant consulting professor of industrial management, graduate school of business, Stanford University. From 1935 to 1944 he has been associated with the Columbia Steel Co., San Francisco, and since 1937 has been its chief industrial engineer. His headquarters will be in San Francisco.



This is a muzzle end view of three bazooka guns mounted on the wing struts of a Piper Cub Artillery liaison plane somewhere in France. Three launchers are attached to each wing of the plane. The guns may be fired individually or in salvo. Ecusta Paper Corp., Hammermill Paper Co. and Brvon Weston Co. are paper concerns which participated in making the pulp molded launching casings for these guns.

Improvements to Increase Sorg Pulp Production

● Extensive improvements and additions are likely to be made at the kraft mill of Sorg Pulp Co. at Port Mellon, on Howe Sound, B. C., in the early future. The proposed expansion will principally affect the recovery plant, washing and screening facilities. Substantial increase in production will follow.

However, detailed plans in this connection have not yet been drafted, and the program is being held in abeyance in part by the difficulty in obtaining required equipment and materials.

In the meantime, however, several new installations are being made to increase efficiency at the Port Mellon plant. A bucket elevator of larger capacity for handling chips will be completed shortly. and water supply is being improved with a new intake basin and screening facilities.

Another item is installation of a yard conveyor for pulpwood and fuel storage. This is being done partly with a view to making it possible to give a full run of jackpine pulpwood in the mill. The jackpine pulp will then be mixed with other pulp in the proper proportions.

Sorg Pulp Co. has been using jackpine for several months with success. The company has a contract with the British Columbia Security Commission which administers Japanese work camps in the interior. The main jackpine camp is at Lone Butte in the Cariboo, served by railroad. The jackpine is shipped to the terminal at Squamish, whence it is rafted to Port Mellon. The camp is supplying 1,000 cords of jackpine a month.

Pulp production, averaging 90 tons daily, is shipped to the parent company, Sorg Paper Co., at Middletown. O., for manufacture of multi-wall bags.

Hugh M. Lewis is vice president and general manager of Sorg Pulp Co. in Vancouver. C. M. Belden is mill manager at Port Mellon, with L. G. Harris, assistant manager. C. V. Kinsey, recently with Boeing Aircraft of Canada, has been appointed controller at the mill.

Stevenson Succeeds Champeaux for WPB

● George E. Stevenson, Bedell Bldg., Portland, Ore., has been designated by Fred H. Brundage, Western Log and Lumber Administrator, to take over the position formerly filled by Henry G. Champeaux as western representative of the Paper Division of the War Production Board, including all statistical work and handling contracts with mills on log supply. Mr. Brundage will continue to administer all matters of general policy. All questions concerning equipment for loggers will be handled as in the past by area representatives, under the general follow up of Elliot T. Roberts.

Mr. Stevenson has worked on log classification, allocation and supply for WPB since the spring of 1942 under Mr. Brundage. Before that date he was with the Simpson Logging Co., Shelton, Wash.

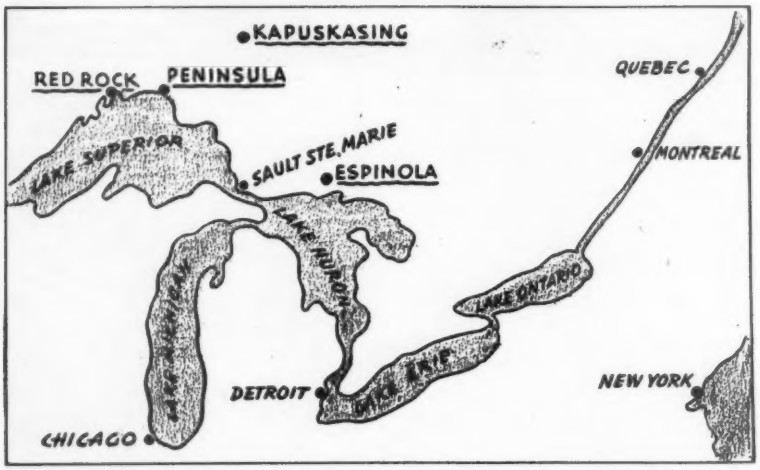
D. D. Davis Heads Minn. & Ont. Paper Co.

● Minnesota & Ontario Paper Co. announces that D. D. Davis, vice chairman of the U. S. War Production Board for the past two years and formerly president of General Mills, Inc., has been appointed executive vice president of the company.

It is expected that at the annual meeting in May, 1945, Mr. Davis will be elected president, succeeding R. H. M. Robinson, who will become chairman of the board.

PROGRESS ON CANADA'S NEW MILLS

Six Projects Under Way . . . Two New Managers Chosen



MAP SHOWING LOCATIONS OF NEW ONTARIO PULP MILLS

● Canadian pulp and paper companies are planning a program of immediate or postwar expansion representing an investment upwards of $110,000,000, according to estimates of some of the best informed men in the industry, given to a representative of Pacific PULP & PAPER INDUSTRY during a recent tour of eastern Canada.

A substantial sum has already been definitely allocated for construction during the coming few months, but most of the figure quoted represents extension and improvement of established plants and new building contemplated if conditions continue favorable. Many of the projects that would now be fully under way have been held back temporarily because of short supply of materials, lack of men or reluctance of the Canadian government to grant priorities that might interfere with the over-all war effort.

But the industry throughout Canada, not only in the provinces of Quebec and Ontario but on the west coast, is definitely in an expansive mood. Many of the important companies have more money in the bank today than for many years; their financial position is secure as the result of a long period of active markets at stabilized prices. A large proportion of these companies realize that much of their plant is seriously in need of replacement or enlargement, but they are restrained from making an immediate outlay to meet these requirements because of factors previously referred to and also because of a readily understood inclination to await some of the results of government policies, especially with respect to tariffs.

In eastern Canada, the pulp and paper operators have learned a bitter lesson from over-expansion in an earlier period. They are naturally adopting a prudently cautious policy now.

"We won't be caught the way we were the last time," remarked one Montreal paper executive. "We want to be very sure before we make any move involving large investment. I remember that we thought we were doing the smart thing back in 1929 when we put in a whole new battery of machines. Two years later we were in receivership. That won't happen again."

Talking to pulp and paper men in centers such as Montreal, Quebec City, Toronto and Ottawa leaves the impression that no immediate expansion in newsprint capacity is likely. The Canadian industry at present has considerable unused newsprint capacity, amounting to more than 600,000 tons.

The trend is towards greater utilization and the expansion of facilities for production of sulphate pulp. In fact, three of the enterprises now definitely going forward in Ontario involve the production of kraft, and a fourth kraft mill is planned for the British Columbia coast.

Here are the Canadian pulp projects, that are either actually under construction or definitely scheduled:

1. Marathon Paper Mills of Canada — Unbleached kraft pulp mill now being built at Peninsula, Ontario.

2. Brompton Pulp & Paper Co.— Bleached kraft pulp mill at Red Rock, Ontario.

3. Kalamazoo Vegetable Parchment Co.—Bleached kraft mill at Espanola, Ontario.

4. Kimberly-Clark Corp. of Canada—Plant for the production of crepe wadding at Kapuskasing, Ontario.

5. Bloedel, Stewart & Welch, Ltd.—Proposed kraft pulp mill at Port Alberni, Vancouver Island, B. C.

6. W. B. Milner and associates— Proposed unbleached sulphite mill at Giscome, near Prince George, B. C.

Marathon Takes Lead

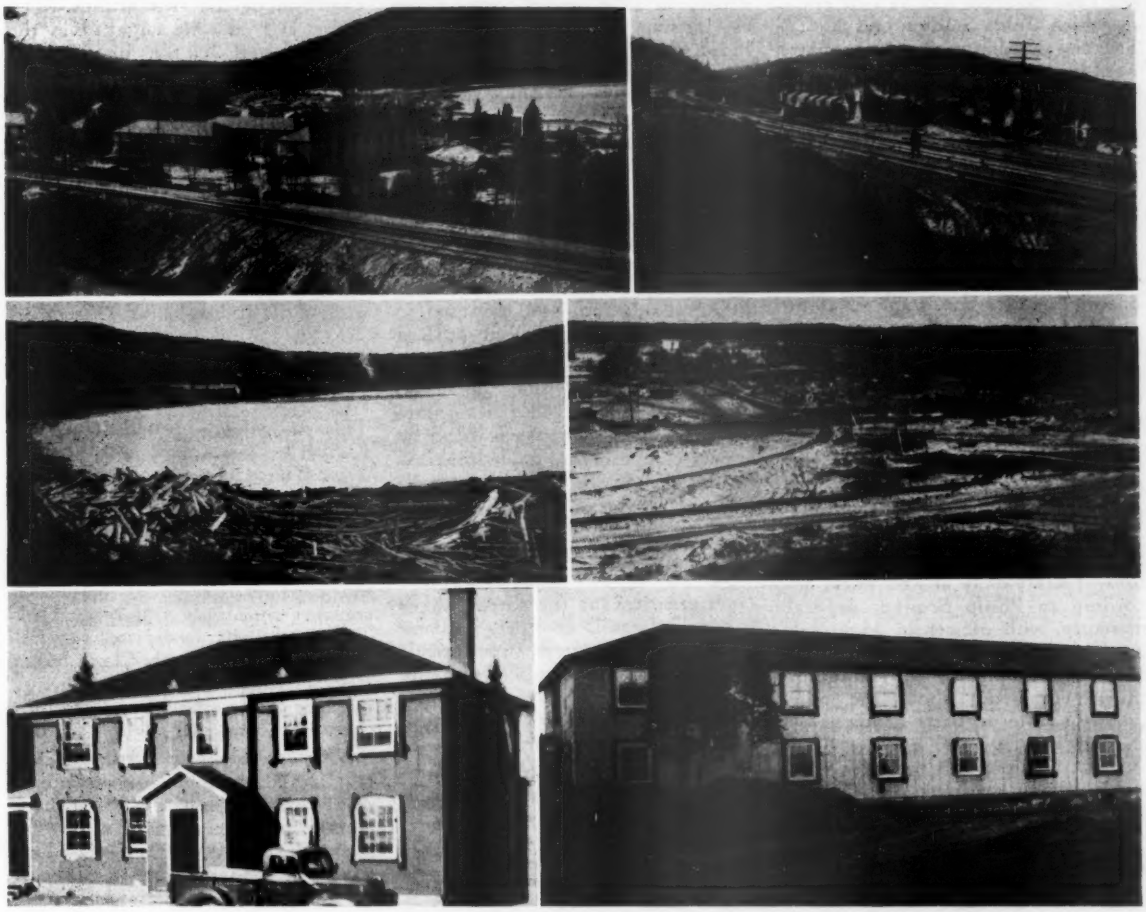
● Of these enterprises Marathon has so far made the most progress, and its new construction represents the largest investment—some $10,000,000. The mill is designed to produce an average of 270 tons of unbleached kraft pulp daily.

Niles Anderson, vice president and general manager of the Marathon Paper Mills of Canada, with offices in Toronto, says the mill will probably go into production by the end of 1945, and a visit to the mill site on the shores of Lake Superior offers convincing evidence that rapid headway is being made.

Details in connection with the layout of the mill, now being worked out by Mr. Anderson and a staff headed by Grant Ross, chief engineer, who with Mr. Anderson was formerly with St. Regis on the west coast, are not yet available, but Pacific PULP & PAPER INDUSTRY is able to present herewith a rough outline of the program.

Highly regarded equipment and material has been incorporated in the design and most of this already has been purchased. It is interesting to note that all departments, including the office and excluding the wood handling and chipper mill, have been incorporated into one building, so to speak, for accessi-

Marathon's New Mill Site and Construction



FIRST VIEWS OF THE SITE AND PRELIMINARY CONSTRUCTION FOR THE NEW MARATHON PAPER MILLS OF CANADA pulp mill being built at community which will be known as Marathon, Ont. (Peninsula, Ont.)

Upper left—New bunkhouses which will be used for permanent housing.
Upper right—Company's railroad spur built off CPR main line.
Center left—Mill site from the barking drum location.
Center right—Showing part of the mill foundation poured.
Lower left—Temporary office building.
Lower right—Typical bunkhouses each housing 100 men. Not finished outside. Will permanently house 50 men in each building.

bility and economy. The different departments will be separated from each other, although under one roof.

The site of the mill is on the north shore of Lake Superior at Peninsula harbor on the main line of the Canadian Pacific Railway. Sufficient ground has been allowed for expansion. The mill structure is adjacent to the water and is connected to a wharf of about 1500 feet in length. The latter will allow the largest lake steamers to dock, discharging coal, etc., and loading pulp, which will be shipped to lake ports for the supply of pulp to the company's parent mills and others.

Head office of Marathon Corp. is in Rothschild, Wis., and officers of the parent company include D. C. Everest, president, and John Stevens, vice-president. For several years the company has operated in Canada with a woods office at Port Arthur under the direction of H. P. Klinestiver.

A spur track from the C.P.R. will serve the mill and town, and incidentally a whole new townsite is being created there for the benefit of the company's employees. The mill alone will provide work for about 500 persons. Main contractors for the construction now being carried out are the Foundation Co. of Canada.

All power requirements for the mill and townsite will be developed from processed steam. Processed water will be pumped direct from Lake Superior. Pulpwood will be supplied by the company's Pic River timber limits which are located to the east of the mill site and which are sufficiently extensive to permit perpetual operation.

It is planned at this time to drive most of the pulpwood down the Pic River, at the mouth of which it will be boomed and towed to the mill, where the conventional jackladder and blockpiles will be installed.

Several housing units already had been built for the townsite when Peninsula was visited a few weeks ago by our Canadian editor, and construction of the hotel of 30 rooms was being rapidly pushed ahead.

Brompton's New Division

● Brompton Pulp & Paper Co.'s

program is to make use of the buildings originally erected in 1938 for the Lake Sulphite Co. at Red Rock, in which John Stadler and R. W. Sweezey of Montreal and associates were interested.

The Red Rock mill was planned to produce sulphite pulp, but the war and other factors interferred with this program and construction was halted before much of the equipment was installed. Red Rock, which like Peninsula is located on the north shore of Lake Superior, is also the site of a groundwood mill operated under the name of Nipigon Fibre Corp. by Brompton, on a rental basis. The rent paid to Nipigon is sufficient to enable the company to provide adequate depreciation. Capacity is about 40 tons.

Brompton, which is engaged directly or through its subsidiaries in the manufacture of kraft pulp and paper, manila and fibre paper, groundwood pulp, newsprint, fine bond, etc., plans to produce 200 tons of kraft daily at Red Rock, according to Philip Scowen, general manager, with offices in Montreal. It will be necessary to install all the required equipment, the buildings themselves being about the only readily usable property acquired by the new owners.

F. D. Taylor, who has been with the Brompton organization 14 years, has been appointed manager of Brompton's Red Dock division. He was graduated from McGill University in 1928, served three years as assistant mill chemist at the Hawkesbury mill of the Canadian International Paper Co. before going to Brompton, where he has served in capacities ranging from chief chemist to general superintendent.

The Red Rock project involves an investment of about $6,000,000, including the price paid for the mill buildings. Brompton produces a certain amount of kraft at its east Angus plant, and it is proposed to produce an equal amount at Red Rock.

KVP, Limited

● The Espanola 200 ton sulphite pulp mill is being pushed ahead by a new company designated merely by initials—KVP, Limited—subsidiary of Kalamazoo Vegetable Parchment Co. of Parchment, Mich., with Norval Hunter as resident manager.

Mr. Hunter was formerly sulphite superintendent at the Great Lakes Paper Co.'s mill at Fort William. Donald Gray is woods superintendent and he is now supervising the purchase of wood pulp. The plant is being got in shape to start production during the coming year.

The Kalamazoo interests purchased the Espanola mill from Abitibi Pulp & Paper Co., which acquired it in 1928 from the Spanish River Paper Co. following the amalgamation of the two groups. The plant, at that time engaged in the production of 200 tons of newsprint daily, was closed down in 1930 and it has been idle ever since.

O. C. Schoenwerk of Chicago, formerly associated with construction projects for Weyerhaeuser Timber Co. and other west coast companies, has been acting in a supervisory capacity. (For more details on KVP, Ltd., see Page 14, November, 1944, issue of Pacific PULP & PAPER INDUSTRY.)

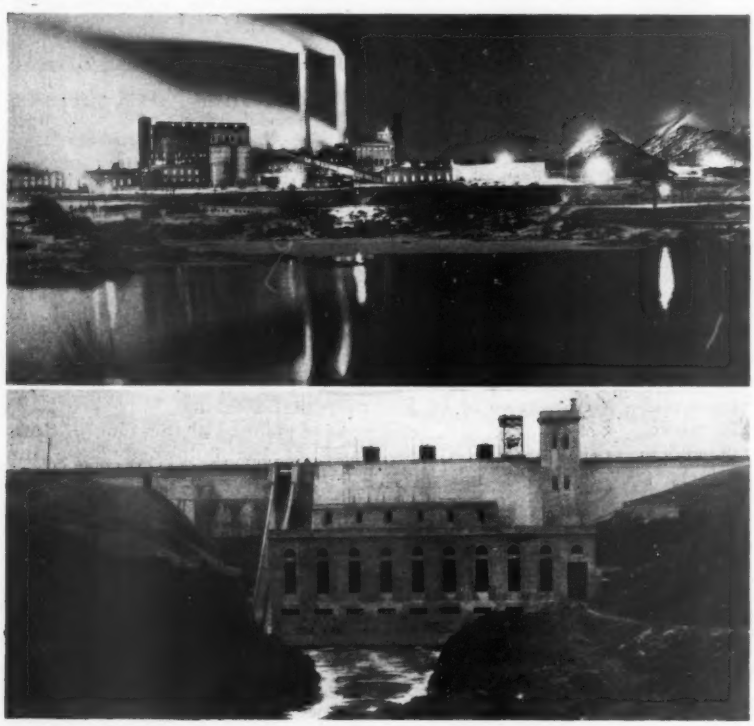
Kapuskasing Mill

● At Kapuskasing, Ontario, Spruce Falls Power & Paper Co. operates. This company is owned jointly by Kimberly-Clark Corp., and the New York Times. In the past the company has produced about 650 tons of newsprint daily, 440 tons of groundwood and 250 tons of sulphite pulp. About 50 per cent of mill capacity is required to fulfill a contract to supply the New York Times with its newsprint requirements, while Kimberly-Clark has a contract to purchase the surplus of sulphite and other products not used by the newspaper.

Kimberly-Clark is currently expending about $925,000 on a new crepe wadding mill at Kapuskasing. This plant, according to Cola G. Parker, president of Kimberly-Clark Corp. of Canada, Ltd., will be a wholly owned subsidiary of the American organization of that name, of which Mr. Parker is also president.

Hill-Clark-Francis, Ltd., of New Liskeard, Ontario, have the contract for erecting a $350,000 mill building, work on which commenced last spring. The development includes erection of houses for the company's employees. The initial installation will consist of one creped wadding machine, with auxiliary equipment. Approximately three and a half acres of land were acquired to carry out this project. The present buildings will occupy about 40,000 square feet, and further expansion is in prospect.

In the past, Kimberly-Clark has produced at Kapuskasing only the pulp for use in the manufacture of crepe wadding, which in turn produces a wide variety of tissue papers and specialties. Instead of manufacturing the crepe wadding for the Canadian market, as in the past, at the company's mill at Niagara Falls, N. Y., the whole process will be concentrated at Kapuskasing, thus effecting a saving in transportation



SPRUCE FALLS POWER & PAPER CO., Kapuskasing, Ont., at night. (Below) The power plant for the Kapuskasing mill.

apart from other advantages. The Niagara Falls plant will confine itself to markets other than Canada, although it will continue to obtain some of its pulp supplies from Kapuskasing.

The Spruce Falls mills have a backlog of timber sufficient to maintain production for many years. The holdings of pulpwood extend 50 miles north and south of the mills, and cutting rights in perpetuity are held on 5,000 square miles of timber.

Bloedel, Stewart & Welch Plan

● On the west coast it seems likely that Bloedel, Stewart & Welch's program will be among the first to materialize provided that there are no unforeseen difficulties. This company has for many years been one of British Columbia's biggest logging and lumber-producing organizations, and the wide range of its operations lends itself naturally to pulp manufacture. While the company, before the war, made tentative plans to establish a sulphite mill, the market trend and a desire to make fuller utilization of timber species, including a large proportion of Douglas fir, caused the company to decide on kraft production. To that end Howard Simons of Chicago has been retained by the Bloedel organization for some time, drafting preliminary plans for a 50,000 ton (annual) mill to cost approximately $5,500,000.

The proposed site of the mill is adjacent to the Bloedel sawmill at Port Alberni, and it is expected that a single power plant will serve both mills. About 7500 k.w. will be required.

If and when the Port Alberni mill is built—and the company's policy in this respect will be largely determined by such factors as availability of equipment and the attitude of various governmental authorities concerned, it will serve as a means of bringing about the long-term objective of the company—maximum utilization of its west coast timber holdings.

Lone Sulphite Project

● The Giscome pulp mill project, financed by W. B. Milner, formerly of Toronto, and his associates, was described in the September issue of Pacific PULP & PAPER INDUSTRY. Construction will probably not get under way until after the war, when an expenditure of $5,500,000 is contemplated on a 200 ton unbleached sulphite plant. The new company has acquired the interests of the Spurr brothers in the Eagle Lake Sawmills and this will provide one source of raw material, although it is expected to utilize the surplus production of a hundred or more small mills located along the line of the Canadian National Railways from Prince George eastward.

Province-Owned Mill?

● It is still too early to report whether there is much real prospect of the Saskatchewan government proceeding with the establishment of a state-owned pulp mill, as proposed recently by Hon. J. L. Phelps, minister of natural resources.

In a letter to Pacific PULP & PAPER INDUSTRY, Mr. Phelps states that "this whole matter is at the present time under consideration. The capacity of the mill will be determined by the supply available and various other factors after the survey is completed. If the proposition is found feasible, the location of the proposed mill will be determined on a basis of the recommendations of the survey."

There is a good deal of interest in this proposal because it would mark a new departure in government ownership and it would also represent the first pulp venture in that section of Canada, which is far removed from water transportation, with limited home market.

Modernization and greater diversification appear to be the main goal of Canada's pulp and paper companies as they face the prospect of a more competitive market. Practically every company has set aside funds for new construction or new equipment. Right now, executives are figuring out just where to spend it; the events of the next few months will determine when they'll spend it. But developments already under way are a sufficient indication that Canada's pulp and paper industry faces an unusually interesting period.

Niles Anderson in N. Y. In Interest of New Mill

● Niles M. Anderson, vice president of Marathon Paper Mills of Canada, Ltd., of Toronto, subsidiary of Marathon Corp., was in New York in early December in connection with designing and equipping of the new kraft pulp mill being built by his company at Marathon, Ont.

Mr. Anderson, formerly mill manager and superintendent of mills on Puget Sound, is in charge of construction of the new mill.

Beaton Joins Marathon

Neville Beaton has resigned his position as division manager of Canada's Wartime Shipbuilding, Ltd., to become assistant to the vice president, Marathon Paper Mills, at Toronto. Mr. Beaton was formerly resident engineer at Powell River Co.

Breitenbach, Deggeller Elected Vice Presidents

● William E. Breitenbach, resident manager of the Port Angeles, Wash, Division of Rayonier Incorporated and Martin N. Deggeller, manager of the Northwest Woodlands Division, which recently established headquarters in Olympia, Wash., were elected vice presidents by the board of directors, at a meeting held in New York, Dec. 5.

Edward Bartsch, president of the company, said Mr. Breitenbach will have general supervision of the northwest mills of the company, and Mr. Deggeller will be in charge of all the company's timber operations.

Mr. Breitenbach has been with Rayonier and predecessor companies since operations began at Shelton, Wash., in 1927. A graduate of the University of Wisconsin, he was chief chemist at Shelton Division for two years. After the Grays Harbor mill was built, he joined that staff in the same capacity. In September 1941, he became production manager at Port Angeles and resident manager on March 1, 1942. His headquarters will be at Port Angeles.

Mr. Deggeller has been with the company a number of years and was formerly with James D. Lacey and Co., timber factors of Chicago. He is a graduate of the University of Washington, a trustee of the Washington Forest Fire Ass'n, and served on Governor Langley's Forest Advisory Committee. In August 1943 he was made manager of Rayonier's Northwest Woodlands Division and under his supervision, the company has substantially extended its timber holdings and operations.

Abitibi May Soon Be Taken From Receivers

● Committees representing the different securities of Abitibi Pulp & Paper Co. are reported to be coming close to an agreement on reorganization which would take the company out of receivership.

At one time one of the most prosperous units in the industry, Abitibi has been in receivership longer than any other pulp and paper concern in Canada. Continued differences between bondholders and shareholders have kept the company's affairs in the courts, but the war has enabled the company ot maintain high production and net working capital last year was over $31,000,000, with every prospect of a further increase this year.

Because of its large holdings of timber and mills Abitibi is believed to be in an excellent position for expansion, and for some years it has been felt that the company could do much better if it were operated by the people who really own it rather than by outside interests.

Camas Supervisors on Trip

● G. H. Galloway, technical supervisor; H. W. Duvall, supervisor of the converting plant; J. L. Shively, bag factory superintendent, and W. C. Gigler, napkin department foreman; all of the Camas, Wash., mill of Crown Zellerbach Corp., made an early December trip to Pacific Mills converting plant, in Vancouver, B. C., and mills on Puget Sound.

The Camas mill later sent Al. W. Morgan, pipe fitters supervisor; E. C. Cooley, superintendent of maintenance; and Fred Stevey, electric supervisor, on a week's tour of northern mills.

SURVEY OF CANADIAN OPINION

On Postwar U. S. Tariffs and European Competition

● Canadian pulp manufacturers appear to be more concerned over the future tariff setup between the United States and Canada than the threat of European competition after the war.

A representative of Pacific PULP & PAPER INDUSTRY recently completed a swing around the principal pulp producing areas of Canada, including Ontario and Quebec, and he discussed with leaders in the industry many aspects of marketing as well as of production. The definite impression was given that while some operators are anxious about the effects of large-scale sales of Scandinavian pulp in the United States during the next few years, the majority are inclined to discount the seriousness of the problem.

But most pulp manufacturers interviewed expressed the opinion that United States tariff policy would be one of the dominant considerations in dealing with plans for plant expansion.

The Canadian operators who expressed themselves on this subject were frankly in favor of complete elimination of tariff barriers rather than merely modification of certain duties.

"If tariffs on pulp and paper products are removed altogether, then we'll be able to readjust our production facilities on a definite basis," said one important pulp and paper manufacturer.

"We will fix our sights on the development of north-south business rather than east-west. We'll gear ourselves to meet the demands of the United States market rather than the smaller and more specialized Canadian field. You'll see some of the Canadian companies which in the past have been obliged to cater to a great variety of Canadian requirements—because of customs protection—swinging into volume production of a few lines for which they are best adapted. Their hope of continued prosperity, if not survival, will depend on ability to concentrate on few products.

"On the other hand, if tariffs are reduced only here and there, Canadian mills may be in a tough spot because of the lower-cost volume production of some mills in the United States. Such a situation would not justify wholesale changes in the production setup of Canadian mills, but it would open the Canadian market to American paper products."

Tariffs, incidentally, are the subject of a continuing study by a special committee of the Canadian Pulp and Paper Association.

Foreign Competition

● In Toronto, Pacific PULP & PAPER INDUSTRY encountered an operator of several mills who does not minimize the threat of Swedish competition.

"What I'm worrying about is that when the war is over the Scandinavian countries will be ready to flood this continent with pulp and paper at a time when we can't compete on favorable terms," said this Toronto man. "Due to the shortage of manpower and other factors Canada has been feeding the market on a hand-to-mouth basis and we're about a year behind in our inventories."

In his testimony before the Sloan commission in Vancouver a few weeks ago Harold Foley, president of Powell River Co., stated that in his opinion Russia might become an important competitor after the war, especially if that country should gain access to the sea at all-year ports.

The Toronto Globe and Mail, one of the most influential newspapers in Canada, declared editorially a few days ago:

"Sweden is reported to be keeping herself poised to jump into the middle of the postwar market. Canada is among the most interested competitors in any such jump. Like that of Norway, our pulp and paper industry was throttled by the war. Because of the priority of demands of war plants only 54 per cent of the industry's capacity was in full-time operation this year; 22.5 per cent was on part time and 23.5 per cent was not available. Notwithstanding this, Canadian mills have been the main source of Allied imports through the war. On its record and in view of the existing unused capacity, the Canadian industry surely is entitled to consideration ahead of 'neutral' Sweden. . . . It would be queer justice which punished the aggressor nations but allowed a nation which had aided them up to the point of going to war on their behalf to go scot free."

Other Predictions

● In Quebec City, another well known manufacturer told Pacific PULP & PAPER INDUSTRY: "If we can unload 750,000 tons of Swedish pulp in this continent at prices that won't upset the market too much, we've got the situation licked, because after that our own geographical advantages and our improved production should be able to take care of the problem automatically."

This operator understood Soviet Russia has acquired the equivalent of 450,000 tons pulp-making capacity from Finland as a part of the reparations agreement.

The manager of one of Canada's largest pulp and paper organizations pointed out that European paper production currently was only equal to that of one of Canada's three or four largest companies, and that it was natural to assume that the European market would have first call on Scandinavian and Russian output.

"Our company," he said, "has had inquiries from European buyers in recent months and, frankly, we're not interested. We'd prefer to let Sweden or some other European country take care of that business. We'd rather sell close to home."

Suggests Canadian Pulp-Paper Trade Pacts

● A hint of how some Canadian pulp and paper men are thinking regarding postwar trade was given recently by Charles Vining, president of the Newsprint Association of Canada and chairman of the industry's joint executive board, when he spoke recently before the Advertising and Sales Executives Club in Montreal.

Mr. Vining said Canada should undertake trade agreements with other countries to assure stability of supply and distribution for Canadian pulp and paper products. He pointed out that in the years immediately preceding the war trade agreements of this nature were made between a number of countries covering coffee and sugar, and quite recently similar agreements have been developed for the handling of oil and cotton. All these pacts have involved the United States government and some, Great Britain.

"It may be," said Mr. Vining, "that, without losing the vitality of free enterprise, Canada can find in agreements of this kind a pattern to fit her legitimate interests in the marketing of her main commodities and to suit the interest of her customers in stability of supply."

PLYWOOD IMPROVED BY PAPERBOARD OVERLAYS

Board for Hoquiam Plywood Corp.'s New Product Is Supplied by Longview Fibre Company

The future uses of pulp, paper and paperboard in what is now called the plywood industry may be a most pleasant postwar surprise to the pulp and paper industry of North America.

We have purposely used the phrase "what is now called the plywood industry" because it may not be an adequate term in future years. (In the March, 1944, issue of Pacific PULP & PAPER INDUSTRY, page 5), it was stated that some chemists foresee a future board made entirely of wood pulp with orthodox papermaking processes and combined with a plastic glue. In August we devoted pages 18-20 to the growing importance of pulp and paper to the plywood industry.

One of the prime subjects of interest in the plywood field today is the development of impregnated paper or paperboard overlays. With it becoming increasingly difficult to get high grade peeler logs for plywood, these overlays make it possible to use imperfect veneers in between two laminated paper or paperboard sheets. This covering of the wood with a paper or board made equally strong or even stronger than ordinary plywood by chemicals, eliminates grain raising and provides a better surface for painting.

But this is still not the ultimate step in use of paper and paperboard. It is too early now to divulge any of the secrets of the plywood companies but do not be surprised if some postwar products eliminate the wood altogether in producing a laminated board or paper product of much greater strength and utility than any similar products now being made.

To get back to present realities—the Harbor Plywood Corp., Hoquiam, Wash., has come out with a new product called Super-Harborite. Its applications thus far have been confined to military uses and "pilot" domestic uses which have demonstrated to a remarkable degree its strength and weathering characteristics.

This product is made with paperboard overlays supplied by the Longview Fibre Co., Longview, Wash. At the Hoquiam plant the board is treated with just sufficient resin in the sheet to bond the adjacent fibers, one to another, in such a manner that it is impossible to separate them. However the sheet is not saturated to the point where all the voids between the fibers are sealed with resin.

Thus is produced a porous surface to which paint readily adheres. This is one of the principal objectives in the development of this new overlay. Super-Harborite has a dull reddish-brown appearance, contrasting with the older types of overlays or laminated papers that have glossy sheens and, therefore, do not take paint as well.

But this is not the only purpose in this new development. It also results in a non-checking material. This unsaturated fiber sheet allows for free passage of moisture into the plywood panel so that the surfaces are not sealed and the edges do not swell. In other words, the surface picks up an equalized moisture content all over the panel instead of merely around the edges.

D. J. BIRMINGHAM (left), Research Engineer, Harbor Plywood Corp., Hoquiam, Wash., and M. S. MUNSON, who handles Public Relations and Sales Promotions for the same company.

Normal plywood pressures are used in making Super-Harborite. Therefore, there is no appreciable compression of the wood veneers and the manufacturer is able to escape the bugaboo of plywood —regain of dimension when material takes on moisture.

Two or three overlay sheets can be laminated on each side of the wood veneer, instead of just one paperboard sheet, as has been the common practice. This depends on the customer's wishes. Where more abrasion resistance is wanted, as in flooring, or where there will be heavy wear, four or six paperboard sheets may be laminated to the veneer.

Work on overlays has been done by several plywood companies, as reported in our August issue. A pioneer in this field is Harbor Plywood, having begun its developments in 1939. Its latest product, Super-Harborite, is protected by Patent No. 2,343,740, U. S. Patent Office, and previous patents.

Longview Fibre Co. (H. L. Wollenberg, pres., and R. S. Wertheimer, vice-pres. and mgr.), one of the big kraft producers of the west, supplies Harbor Plywood with a .015 paperboard sheet containing no size and very little calendering. It is a sheet with high absorption qualities, weighing 50 pounds per thousand sq. ft.

Harbor Plywood makes its own phenol formaldehyde type of resin for impregnation of the board and bonding of veneers.

In most other overlays developed in recent years, a much thinner paper has been used, in some cases a rag and wood pulp paper, and the resin has been applied only to the outside and had to impregnate by its own ability, except in cases where impregnation was done in a beater.

In Hoquiam, the paperboard of a width that trims 48 inches is fed to an impregnating machine. It is impregnated in a way that gives higher resin content at the point of contact with the plywood body in the finished product.

Super-Harborite is made in line production methods, with equipment now capable of producing 60,000 feet in a 24-hour day, but which will be increased almost certainly as the product becomes available for civilian use.

A brief description of the line production steps in this manufacturing process may be of interest to pulp and paper makers.

The Longview Fibre board goes through:

1. The impregnating machine.
2. Squeeze rolls.
3. Air dryer.
4. Yankee rolls.
5. An electric-eye operated clipper.
6. Glue spreader.

After this step comes the steps in orthodox plywood production.

After passing over the impregnating machine suction roll, the board goes to the squeeze rolls, as mentioned above, which regulate the amount of resin solution that goes into the sheet before it enters the dryer. It then goes onto a screen where it is partially dried and from there over 8-foot diameter Yankee rolls, which are a familiar sight to papermakers.

The clipper regulates the length of the sheet. It cuts sheets, as stated by electric eye stop, to 98 inches length for a 96-inch plywood panel. This allows for saw trim in the finishing stages.

Two impregnated paperboard sheets are clipped together, before going through the glue spreader. This is done in order to coat only one side of each sheet with glue. The reason the sheets are clipped together with staples is in order to hold the two sheets in alignment as they go through the glue spreader, thus preventing any offset.

After going through the glue spreader, the sheets meet the plywood panels. Each set of two stapled sheets is put between two panels and simultaneously, the operator breaks off the staples with a motion of his hand.

Panels and sheets assembled together are now ready for the hot press, which, as stated before, is one of the orthodox plywood manufacturing stages. Each panel, with overlays on each side, goes into a separate opening in the press. This operation is carefully timed after the glue spreading operation. Moisture content is controlled throughout all steps in manufacture.

As indicated previously, the hot press causes no appreciable compression of the "sandwich" of component veneers, thus any tendency to dimension regain in weather changes is avoided. This is important, because in some products, such as ammunition boxes, tolerances of no more than 1/64th of an inch are allowed.

Normal pressures also avoid any ten-

dency of hard summer grain showing through the fiber facings and thus the facing has a uniform appearance and affinity for paint and other finishes.

A humidifying process which follows the hot press is especially devised for this Super-Harborite product. While the panel is still warm from the press, it runs through a water spray and is immediately placed in a stack, so that the panel is steamed to raise its moisture content to approximately eight per cent.

This relieves any stresses that might be in the panel that would tend to cause warpage. This treatment serves as a tempering or annealing of the panel, which assures uniform behavior of the panel in service. In other words, the Super-Harborite comes from this treatment flat and it is very likely going to stay flat.

Panels are trimmed by usual plywood plant methods and are ready for shipment, trimmed to tolerances of 1/32 of an inch in length or width and ⅛ of an inch in square. They are branded with the burned-in trademark "Super-Harborite" on four edges. This is supplementary to the disinguishing green binder line used in the plywood body by Harbor Plywood Corp.

All panels are wrapped in strong "dustproof" heavy kraft paper bundles and are labeled to show size and contents.

Each panel is four feet by eight feet unless a customer specifies "giant" panels. "Giant" panels of Super-Harborite calls for another manufacturing step known as scarfing. Four by eight panels are scrafed together, using a scarfjoint with a slope ratio of one to 12, which produces a joint as strong as the unscarfed portion of the panel. This, of course, can be done numerous times with two or more panels, if desired, so as to produce any length or width "giant" panel. The scarfing can be done along the width or length of the panels.

Harbor Plywood Corp. has explored possible variant uses of the impregnated paperboard for postwar products. Variations and deviations of the technique in production of Super-Harborite are entirely within the realm of future possibility.

E. W. Daniels is president of Harbor Plywood Corp. It was in Hoquiam in 1925 that Mr. Daniels and several associates created the present company. A fire in 1928 did not for long stop them, as they rebuilt their present plant as soon as possible.

J. R. Rehm, secretary in charge of production, a University of Washington graduate, joined the firm right after the fire of 1928.

D. G. Birmingham, research engineer, has been a key man in the development of synthetic resin-bonded exterior plywood and has been with the company since 1935, when research and development of this type of plywood began.

Mr. Birmingham, research engineer, is in charge of the technicians which is somewhat reminiscent of a paper mill's lab. He has pilot hot presses, pilot pulping equipment, and other machines, however, which naturally would not be seen in a paper mill. Some equipment, on the other hand, is quite similar.

Mr. Birmingham came to Hoquiam from Pacific Lumber Co., in Scotia, Calif., where he was doing experimental work on impregnating fiberboard. The development of redwood pulp plastics and other products at Pacific Lumber Co. have been described in this magazine.

M. S. Munson is in charge of public relations and sales promotion at Harbor Plywood Corp.

West Linn Over Top

● In the Sixth War Loan drive at the West Linn, Ore., mill of Crown Zellerbach Corp., three days proved sufficient to go over the top, according to C. E. Bruner, resident manager. Solicitation continued with expectations of a 30 per cent excess of quota. On the employes' committee were Tony Herbst and William D. Wilson.

NEWS OF *The Pulp and Paper Industry--*

15 YEARS AGO

Consolidated Water Power & Paper Co. of Wisconsin went off straight newsprint production and began making book and bond papers.

Brown Paper Co. began construction to increase the capacity of its Monroe, La., mill from 175 to 400 tons.

Mersey Paper Co. announced plans to begin construction of a new mill at Brooklyn, near Liverpool, Nova Scotia (this mill now makes 325 tons daily of newsprint.)

The year closed with a rosy outlook for the Pacific Coast pulp and paper industry. Big things were forecast in the way of new and better construction. Norman Gibbs, resident manager for Crown Zellerbach Corp. and spokesman for the new Olympic Forest Products Co., announced tonnage capacity of the 200-ton mill being built by that company at Port Angeles (now Rayonier's) would be increased. He said Crown-Z's Port Angeles newsprint mill would add a unit.

10 YEARS AGO

Fibreboard Products, Inc., Vernon, Calif., announced plans to install a new de-inking system of their own design to improve the waste paper stock situation.

The Department of State was reported negotiating a reciprocal trade treaty with Sweden which would control pulp imports by the U. S. from that country. Sidney L. Wilson, president of the American Paper & Pulp Assn., and chairman of the Paper Industry Authority, filed a statement of views with the State Department on Oct. 29, 1934, which said, in part: "It is not our view that the NRA act was written to produce prosperity abroad, at expense of American workmen." He stressed that Sweden already had a favorable trade balance with U. S.

Coast TAPPI Turn Out 125 Strong at Camas To Hear Discussions on Utilizing Plant Waste and Bark

AT THE CAMAS, Wash., TAPPI DINNER:
Top Row (left to right): ERIK EKHOLM, Gen. Supt., Puget Sound Pulp & Timber Co. and Chairman of Pacific TAPPI Section; R. S. WERTHEIMER, Vice Pres. and Res. Mgr., Longview Fibre Co.; W. R. BARBER, Tech. Dir., Central Tach. Dept., Crown Zellerbach Corp.; CARL E. BRAUN, Vice Pres. and Mill Mgr., Hawley Pulp & Paper Co.; CARL FAHLSTROM, Asst. Res. Mgr., Longview Fibre Co., and JOHN DUPUIS, Pulp Tester, Columbia River Paper Mills. Mr. BARBER has succeeded Mr. WERTHEIMER as TAPPI National Exec. Committeeman.

Lower row (left to right): R. A. MURRAY, Day Foreman, Columbia R. Paper Mills; T. H. GRANT, Sulphite Supt., Columbia R. Paper Mills; GEORGE R. SUCCAR, Peruvian enrolled in Forestry School, Oregon State College; DEAN PAUL M. DUNN, head of the Forestry School, OAC; DR. LEO FRIEDMAN, School of Chem. Eng'ring, OAC, and W. C. JACOBY, Asst Tech. Supervisor, Crown Zellerbach Corp., Camas.

● Pacific Section, TAPPI, held another of its widely spaced in point of time war-time meetings in Nora Self Hall, Camas, Wash., on Nov. 14. Attendance exceeded expectations with 125 present, including members. and friends from mills and allied industry throughout the Pacific Coast states.

The meeting departed a bit from usual in that cellulose as such did not enter into the two papers presented, one of which concerned itself with the uses, values and commercial costs of agricultural waste with opportunities in fibrous and other production; the other with utilization of the wastes of a pulp and paper mill using hemlock, the extraction of tannin commercially from western hemlock bark.

W. B. Van Arsdel, of the Engineering and Developing Division, U. S. Department of Agriculture, Albany, Calif., discussed the U. S. Department of Agriculture's Research Laboratories. The other paper, submitted in connection with the Shibley Award, was entitled: "The Extraction of Tannin From Waste Western Hemlock Bark." (Both of these papers are published in this issue following this article.)

William Pittam, Research Department, Pulp Division, Weyerhaeuser Timber Company, Longview, Wash., who presented this paper, described the pilot plant now in use, pointed out that extraction of the tannin did not alter the fuel value of the bark, and made the economic point that the total value of tannin available from this source would never be of sufficient volume to affect the price structure of the tannin market, and that the quality was better than any other single tannin produced although certain combinations of tannin from various sources exceeded the western hemlock extractive in some instances.

A motion-picture entitled "Timber to Tokyo" featured the innumerable ways in which wood and its derivatives are helping to win the war.

In opening the meeting Erik Ekholm, general superintendent, Puget Sound Pulp & Timber Co., Chairman of Pacific Section of TAPPI, read the inscription on packages of paper napkins set at each plate, saying, "Greetings to Pacific Coast Section of TAPPI, Camas, Washington, Nov. 14, 1944.

> At least one night in every year
> It makes us very happy
> To entertain and act as host
> To Pacific Section TAPPI.
>
> —Crown Willamette Paper Co., Division of Crown Zellerbach Corporation."

Thanking R. G. Jaffe and Dr. W. F. Holzer, both of the Central Technical Department, Crown Zellerbach Corp., Camas, as "the two who have done the most work" in connection with the meeting, Ekholm also praised the campfire girls, and their mothers who cooked and served the meal under direction of Mrs. Kenneth Weidman, and thanked Vice Chairman Harold W. Bialkowsky, technical director, Pulp Division, Weyerhaeuser Timber Co., Everett, Wash., for program arrangements.

Others at the head table: W. N. Kelly, Manager, Pulp Division, Weyerhaeuser Timber Co., Longview, Wash.; A. G. Natwick, Asst. Mgr., Camas mill of Crown Zellerbach Corp.; C. E. Braun, Vice Pres. and Gen. Mgr., Hawley Pulp and Paper Co., Oregon City, Ore.; W. E. Barber, Central Technical Dept., Crown Zellerbach Corp.; R. S. Wertheimer, Vice-Pres. and Res. Mgr., Longview Fibre Co., Longview, Wash.; J. E. Hanny, Res. Mgr., Camas mill of Crown Zellerbach Corp.; Harold Bialkowsky, Technical Director, Pulp Division, Weyerhaeuser Timber Co., Everett, Wash.; Z. A. Wise, Griffith Rubber Mills, Portland, and executive committeeman, and R. M. True, General Dyestuffs Corp., Portland, secretary-treasurer of the section.

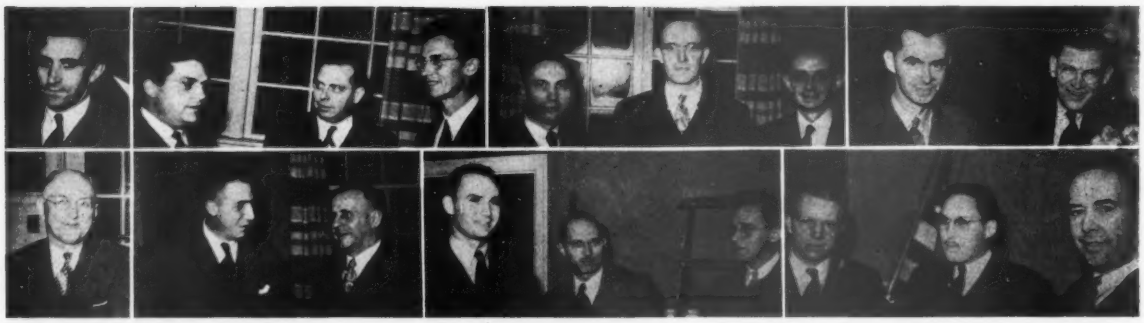
Through a chart Mr. Van Arsdel showed that food with a high moisture content, from potatoes selling at 7.5 cents per pound to asparagus, tomatoes and lettuce, each valued at over $100 per ton, were beyond other commercial uses, but that stalks, husks and agricultural waste at about 4/10 of a cent for transportation costs, up to wheat or corn at about 2.0 to 2.4 cents were economically feasible as the base for materials, including paper or corrugated board.

The tannin discussion produced quite a number of questions.

The following were registered for Nov. 14 meeting:

C. E. Ackley, Crown Zellerbach Corp., Lebanon, Ore.; D. L. Anderson, Hercules Powder Co., Portland, Ore.; George D. Bailey, Crown Zellerbach Corp., Camas, Wash.; Wm. R. Barber, Crown Zellerbach Corp., Central Technical Dept., Camas; E. R. Barrett, A. O. Smith Corp.. Seattle; Harold W. Bialkowsky, Pulp Div., Weyerhaeuser Tbr. Co., Everett, Wash.; Carl E. Braun, Hawley Pulp & Paper Co., Oregon City, Ore.; James B. Brown, Crown-Zellerbach Corp., Camas; H. E. Burdon, Crown Zellerbach Corp., Camas; G. W. Charters, Crown Zellerbach Corp., Camas; R. E. Chase, R. E. Chase & Co., Tacoma, Wash.; William W. Clarke, Longview Fibre Co., Longview, Wash.; William M. Clines, General Chemical Co., Seattle.

J. V. B. Cox, Hercules Powder Co., Portland; Arthur Dammann, The Bristol Co., Seattle; H. N. Danielsen, Si-



TAPPI MEN AT CAMAS, Wash.:
Top row (left to right): HAROLD W. BIALKOWSKY, Tech. Dir., Pulp Div., Weyerhaeuser Timber Co., Everett, Wash., and Vice Chairman of Pacific TAPPI; R. N. HAMMOND, Research Dept., Pulp Div., Weyerhaeuser Timber Co., Longview, Wash.; T. J. NELSON, C & H Sugar Co., San Francisco; S. E. HAZELQUIST, Tech. Dir., Pulp Div., Weyerhaeuser Timber Co., Longview; R. C. JAFFE, DR. W. F. HOLZIER and JOEL EDWARDS, all of Central Tech. Dept., Crown Zellerbach Corp., who constituted Entertainment Committee; GUS OSTENSON, Paper Mill Supt., Crown Zellerbach Corp., Camas, and TONY SIEBERS, Paper Mill Supt., Longview Fibre Co.

Lower row (left to right): J. E. HANNY, Res. Mgr. of the host mill, Crown Zellerbach Corp., Camas; W. N. KELLY, Mgr., Longview mill, Pulp Div., Weyerhaeuser Timber Co.; C. E. ACKLEY, Supt., Crown Zellerbach Corp., Lebanon, Ore.; D. D. WILMA, Shift Chemist; DR. JOHN F. HART, Chief Chemist, and W. W. CLARKE, Asst. Paper Mill Supt., all of Longview Fibre Co.; E. W. LOZIER, Western Pine Assn.; DONALD G. FELTHAUS, Acting Plant Engineer, Pulp Div., Weyerhaeuser Timber Co., Longview, and W. C. MARSHALL, Pacific Coast Supply Co., Portland, Ore.

monds Saw & Steel Co., Portland; R. D. Day, Crown Zellerbach Corp., Camas; T. E. Dear, Crown Zellerbach Corp., Camas; R. E. Draper, Pulp Div., Weyerhaeuser Tbr. Co., Everett; Dean Paul M. Dunn, Oregon State College, Corvallis, Ore.; John DuPuis, Columbia River Paper Mills, Vancouver, Wash.; G. C. Eck, Crown Zellerbach Corp., Camas; E. Ekholm, Puget Sound Pulp & Timber Co., Bellingham, Wash.; Joel Edwards, Crown Zellerbach Corp., Camas; A. E. Erickson, Weyerhaeuser Tbr. Co., Pulp Div., Longview; E. O. Ericsson, Puget Sound Pulp & Timber Co., Bellingham.

Ed Escher, Longview Fibre Co., Longview; Carl Fahlstrom, Longview Fibre Co., Longview; W. L. Failing, Crown Zellerbach Corp., Camas; Chester A. Fee, Pacific Pulp & Paper Industry, Portland; Donald G. Felthous, Weyerhaeuser Tbr. Co., Pulp Div., Longview; F. J. Fitzpatrick, Monarch Forge & Machine Works, Portland; Milton J. Franklin, Crown Zellerbach Corp., Camas; Leo Friedman, Oregon State College, Corvallis; G. H. Gallaway, Crown Zellerbach Corp., Camas; Irving R. Gard, Merrick Scale Mfg. Co., Seattle; Harry W. Glenn, Crown Zellerbach Corp., Camas; Russell Graff, Longview Fibre Co., Longview; T. H. Grant, Columbia River Paper Mills, Vancouver.

Earl G. Hallonquist, Rayonier Incorporated, Shelton, Wash.; R. N. Hammond, Weyerhaeuser Timber Co., Longview; J. E. Hanny, Crown Zellerbach Corp., Camas; John F. Hart, Longview Fibre Co., Longview; Harald Hauff, Weyerhaeuser Timber Co., Longview; Jan Haugerod, Crown Zellerbach Corp., West Linn, Ore.; W. H. Haverman, Weyerhaeuser Timber Co., Longview; S. E. Hazelquist, Pulp Div., Weyerhaeuser Tbr. Co., Longview; H. F. Hoehne, Longview Fibre Co., Longview; W. F. Holzer, Central Technical Dept., Crown Zellerbach Corp., Camas; James H. Hull, Crown Zellerbach Corp., Camas; W. F. Hynes, General Electric Co., Portland; W. C. Jacoby, Crown Zellerbach Corp., Camas.

R. G. Jaffe, Crown Zellerbach Corp., Central Technical Dept., Camas; W. H. Kasch, Weyerhaeuser Tbr. Co., Pulp Div., Everett; W. N. Kelly, Weyerhaeuser Timber Co., Pulp Div., Longview; Ernie Kertz, John W. Bolton & Sons, Portland; Glen D. King, Crown Zellerbach Corp., Camas; Donald Knapp, Crown Zellerbach Corp., Camas; Lauren A. Lafond, Crown Zellerbach Corp., Lebanon; N. A. Lewthwaite, Crown Zellerbach Corp., Port Townsend, Wash.; Gus Lorenz, Crown Zellerbach Corp., Camas; E. W. Lozier, Western Pine Assn., Research Laboratory, Portland; A. H. Lundberg, 901 Textile Tower, Seattle; B. T. McBain, Spaulding Pulp & Paper Co., Portland.

J. H. McCarthy, Soundview Pulp Co., Everett; L. D. McGlothlin, Crown Zellerbach Corp., Camas; Milton J. Maguire, Hercules Powder Co., Portland; R. V. Maier, General Electric Co., Portland; W. C. Marshall, Pacific Coast Supply Co., Portland; Robert W. Martig, Brown Instrument Co., Portland; Otto F. Michaelis, Crown Zelerbach Corp., Camas; C. W. Morden, Morden Machines Co., Portland; R. A. Murray, Columbia River Paper Co., Vancouver; A. G. Natwick, Crown Zellerbach Corp., Camas; Ben E. Natwick, Appleton Wire Works, Camas; T. J. Nelson, C-H Sugar, San Francisco.

A. Newcomb, Crown Zellerbach Corp., Camas; E. H. Nunn, Crown Zellerbach Corp., West Linn; James Osborne, General Chemical Co., Vancouver, Wash.; Gus Ostenson, Crown Zellerbach Corp., Camas; E. V. Partlow, Rayonier Incorporated, Shelton; Jim Peake, Longview Fibre Co., Longview; L. W. Pingree, Wallace & Tiernan Sales Corp., San Francisco, Calif.; Wm. Pittam, Weyerhaeuser Timber Co., Longview; J. C. Plankinton, Crown Zellerbach Corp., Camas; W. H. Rambo, Portland; H. H. Richmond, Electric Steel Foundry Co., Portland; E. J. Roake, Crown Zellerbach Corp.; West Linn; Jack V. Savage, Crown Zellerbach Corp., Camas.

Leon E. Semke, Crown Zellerbach Corp., Camas; Burl R. Shanks, Crown Zellerbach Corp., Lebanon; Robert Shearer, Longview Fibre Co., Longview; Wm. J. Shelton, Longview Fibre Co., Longview; Dalton L. Shinn, Crown Zellerbach Corp., Camas; D. L. Shirley, Electric Steel Foundry Co., Portland; A. P. Siebers, Longview Fibre Co., Longview; R. T. Smith, Wallace & Tiernan Sales Corp., Portland; Ray Smythe, Portland; Gus A. Sporre, Stein-Hall Mfg. Co., Portland; C. F. Stevey, Crown Zellerbach Corp., Camas; Albert W. Stout, Western Pine Assn., Portland; J. P. Strasser, Stein Hall Mfg. Co., Chicago.

R. E. Strommer, Longview Fibre Co., Longview; George R. Succar, Oregon State College, Corvallis; Virgil M. Sutherling, Longview Fibre Co., Longview; G. Eugene Tower, Oregon Forest Products Lab., Corvallis; R. M. True, General Dyestuff Corp., Portland; W. B. Van Arsdel, U. S. Dept. of Agriculture, Albany, Calif.; Harold C. Wall, Longview Fibre Co., Longview; L. H. Wear, Taylor Instrument Co., Portland; Jack W. Weiblen, Columbia River Paper Mills, Vancouver; Fred J. Weleber, Hawley Pulp & Paper Co., Oregon City; W. A. Wenzel, Longview Fibre Co., Longview; E. N. Wennberg, Columbia River Paper Mills, Vancouver; R. S. Wertheimer, Longview Fibre Co., Longview; Rex West, Longview Fibre Co., Longview.

O. C. Wheeler, Crown Zellerbach Corp., Camas; Jack Wilcox, Electric Steel Foundry Co., Portland; Peter M. Wilkie, Crown Zellerbach Corp., Camas; D. D. Wilma, Longview Fibre Co., Longview; Zina A. Wise, Griffith Rubber Mills, Portland; Herb Wymore, Crown Zellerbach Corp., Camas; Eugene V. Young, Columbia River Paper Mills, Vancouver; and J. G. Ziegler, Taylor Instrument Co., Rochester, N. Y.

Bill Macklem's Son Has Special Navy Radar Job

● Lieut. Warren Macklem, U. S. Navy Reserve, who is a son of William W. Macklem, sales engineer, Black Clawson Co., Hamilton, O., is in charge of equipping radar installations with headquarters near Philadelphia.

Lieutenant Macklem spent a year and a half in the Aleutians and Southeastern Alaska on a special assignment detecting Japanese submarines in that region.

Mispley Returns From Tour

● Robert G. Mispley, assistant technical director of Central Technical Dept., Crown Zellerbach Corp., Camas, Wash., has just returned from a six months tour of eastern and southern mills. Much of his time was spent in Texas, Florida and the Midwest area.

Points of Interest for Pulp and Paper Industry In Four U. S. Dept. of Agriculture Regional Laboratories

Following is an abridged report of a paper given by W. B. VAN ARSDEL (right), Head of the Engineering and Development Div., Western Regional Research Laboratory, Bureau of Agricultural and Industrial Chemistry, U. S. Dept. of Agriculture, before TAPPI's Pacific Section, at Camas, Wash., Nov. 14. It outlines activities of interest to the industry in four of the Department's Regional Laboratories—at Albany, Calif., New Orleans, Philadelphia and Peoria, Ill.

● The idea which culminated in 1938 with the Act of Congress establishing the Regional Laboratories had been developing over many years. Roughly, the idea was this: The American farmer needs a diversification of the market for his produce. Like a one-industry town, or a mill under contract to a single customer, he has been vulnerable. Not only that, but a whole great group of farmers was experiencing a disastrous shrinkage of markets, due in part to the rise of competitive non-farm products. Perhaps a vigorous research program in the farmers' behalf could uncover new uses, leading to a broader and more diversified market.

One aspect of this idea came to be known as "chemurgy." The National Farm Chemurgic Council sponsored annual conferences. Interest was especially keen in the Pacific Northwest. Dr. H. K. Benson, of the University of Washington, was one of the leaders. In all of this discussion the idea of New uses was central. Since most farm products are grown for food, the chemurgic idea typically emphasized non-food products—plastics, fibers, industrial chemicals, and the like—made from farm wastes and such crops as corn, wheet and soybeans. The Department established research laboratories at Arlington, Virginia; Ames, Iowa, and Urbana, Illinois, primarily for the purpose of investigating these possibilities.

The almost unmanageable surpluses of important farm crops during the depression years led to several proposals for increased Governmental research. A bill calling for the establishment of a cotton utilization research laboratory in the South was broadened to provide for four laboratories, one in each of four regions of the United States. This authorization directed that the Secretary of Agriculture was to: ". . .conduct researches into and to develop new scientific, chemical, and technical uses and new and extended markets and outlets for farm commodities and products and by-products thereof. Such research and development shall be devoted primarily to those farm commodities in which there are regular or seasonal surpluses, and their products and byproducts."

This charter is evidently broader than the idea expressed by the word "chemurgy." The central theme is a broadening and diversification of the fields of utilization of farm products. Research on utilization as food is specifically included.

The Four Regional Laboratories

● The four laboratories established in accordance with the Act of 1938 are located in Peoria, Illinois; near Philadelphia; in New Orleans, and in Albany, Calif., across the Bay from San Francisco. Each is valued at more than $2,000,000, and is designed to accommodate a staff of about 250 people, with facilities both for chemical, physical, and biological laboratory research and for engineering and pilot plant development. Very fortunately, the buildings were completed and basically equipped before the war.

The primary division of responsibility among the laboratories was based upon differences in the farming interests of the regions. The New Orleans laboratory emphasizes research on utilization of cotton; the Peoria laboratory emphasizes utilization of cereal grains. The Philadelphia and Albany laboratories have no such simple bases, because of the diversity of agricultural interests in eastern and western regions.

Each laboratory is somewhat distinctive from the standpoint of chemical specialization. The Northern Laboratory (Peoria, Ill.) specializes in chemistry of cellulose, lignin and hemicellulose as related to utilization of agricultural residues. The Southern Laboratory (New Orleans) maintains research on vegetable oils, typified by cottonseed and peanut oils. Intensive work on protein chemistry is carried out both in the Western (Albany, Calif.) and the Eastern (Philadelphia) Laboratories. The fundamental chemistry of hemicelluloses is studied in the Western Laboratory. One specialty that holds interest for pulp chemists, namely lignin chemistry, is being studied at the Northern Laboratory both from theoretical and practical viewpoint, but only as applied to the annual plants.

What might be called specialties in technology are also developing in the laboratories. The Southern Laboratory is headquarters for technologies of textile and oilseed crushing. The Eastern Laboratory has emphasized technologies of organic synthesis and tanning. The milling of cereal grains, industrial fermentations, and certain types of pulping operation and board formation, are specialties at the Northern Laboratory. The Western Laboratory has strong interests in food processing technologies, especially freezing and dehydration.

Applied phases of research in the Western Laboratory divide generally into two groups—research in food processing, and research on the recovery of byproducts from processing wastes.

Fruits, vegetables, poultry, and eggs play an important part in the agricultural economy of the Far West. Their combined annual farm value in the eleven Western States has exceeded $700,000,000 in recent years. A large proportion of these commodities is processed in some manner before it reaches the consumer. The labor expended on the farm products in such plants, together with packaging and other manufacturing costs, adds materially to their value. The factory cost of canned, frozen, or dehydrated vegetables is commonly from two to four times the cost of the raw material delivered to the factory. The size and value of the farmer's market for his produce may therefore be deeply affected by what happens in the processing plant—and not by any means from the cost standpoint alone.

Out of the Western Laboratory's research have come many of the techniques that have made frozen-packed foods welcome and familiar in millions of American households. About 30 persons are engaged in work on this program in the laboratory. In our opinion, the technology of food freezing is still in its early childhod, if not in its infancy. Problems of raw material selection and handling, prefreezing treatments, sanitation, packaging, and plant design and organization, are as important as they are troublesome.

Research on food dehydration came to the Western Laboratory as an urgent national defense project six months before Pearl Harbor. Since then it has occupied a major share of our attention. The scheduled production of dehydrated vegetables for Government account during 1944 is approximately 190,000,000 lbs, and that of spray-dried whole egg approximately 300,000,000 pounds. These amounts correspond to a total value of more than $400,000,000. Commercial production was negligible in 1940.

Dehydrated foods are, in general, very good as freshly manufactured, but they are not imperishable. We believe that if this problem is solved a solid foundation will have been laid for development of a peacetime food dehydration industry.

Byproducts Research

● The Western Laboratory has been pursuing several lines of byproduct development. One of the especially interesting fields has come from discoveries in protein chemistry that have already led to new types of artificial fiber. While it is too early to estimate the value of this discovery, the potentialities are very great.

One byproduct study in the laboratory that holds a particular interest for the pulp mills of the Northwest concerns the extraction of a tanning material from Western Hemlock bark. Our bureau has for many years conducted an active program on the technology of tanning and tanning materials. A number of years ago two of the bureau's investigators turned their attention to Western Hemlock bark as a potential native source of tannin. The investigation had to be concluded before the matter could be explored fully. When the Regional Laboratories were established, this line of work on tanning was set up in the Eastern Laboratory. The war then made the threatened shortage of tanning materials an actuality, and further investigation of Western Hemlock—along with other

domestic sources of tannin—became urgent. With cooperation of the Forest Service, work on some of the pressing technical problems was started in the Western Laboratory, close to mill operations that would be sources of the bark. Practical tanning tests have been conducted in the Eastern Laboratory. An investigation is still under way, particularly in one of the Northwest pulp mills (see article preceding this one).

Laboratories and the Pulp and Paper Industry

● Numerous activities in the Regional Laboratories may be important to the pulp and paper industry. The following list of such contacts of interest is by no means exhaustive:

Northern Laboratory (Peoria, Ill.):

1. Utilization of agricultural residues, such as straw, stalks, hulls and cobs, as pulps for specialty papers, corrugating an container board, insulation and hard board, building materials, plastics, cork substitutes, and fermentable sugars. Dr. E. C. Lathrop is in charge of the work.
2. Production of moistureproof and heat-sealing paper coatings from vegetable oils.
3. Production of industrial alcohol and other fermentative products.
4. Fundamental chemical research on carbohydrates, with particular reference to corn and wheat starch utilization.

Eastern Laboratory (Philadelphia):

1. Production of synthetic resins and plasticizers.
2. Tanning and tanning materials.

Southern Laboratory (New Orleans):

1. Fundamental properties of cellulose fibers.

Western Laboratory (Albany, Calif.):

1. Chemical research on hemicelluloses.
2. Packaging of frozen and dehydrated foods.
3. Production of yeast from sugary wastes.
4. Western Hemlock tannin.

The Regional Laboratories will welcome inquiries and will be delighted to exchange view on subjects of mutual technical interest.

Talks on Alcohol Process Problems and Tannin From Hemlock Bark Features Chemurgic Meeting

● Briefs of talks at the Washington State Chemurgic Committee sessions in Longview, Wash., Nov. 28, which were of most interest to the pulp and paper industry:

Howard R. Huston, assistant to the president, American Cyanamid & Chemical Corp., and vice president of the National Farm Chemurgic Council: "We will emerge from war with a capacity to manufacture scores of products which were a few years ago almost beyond comprehension . . . in past we have developed glass that will float and not break, wood that will not burn, a host of scientific materials and hundreds of new materials. . . . There are chemical and plastic developments we will hear nothing about until after the war. . . . With restoration of the American way of production under free enterprise, we will be free to enjoy the reward."

Dr. Eduard Farber, German refugee scientist and consultant for Timber Engineering Co., Washington, D. C.: "In new developments in making alcohol from wood materials, three problems that should be solved are (1) finding a process to salvage unfermentable sugars, (2) building a wider market for the carbon dioxide generated during wood hydrolysis, and (3) reclamation of processing water for re-use. About 300 pounds of unfermentable sugars, with a possible ½ cent per pound commercial value, are a residual from manufacture of 60 gallons of alcohol from wood. The developed 80,000 pounds of carbon dioxide per day meanwhile, can only be used in part for dry-ice manufacture, but may find a much larger field in the fishing industry.

"Hydrolysis necessitates wood in its lowest form—that is, wood commercially unusable, to keep production costs at a minimum. Wood costs were set at $2 per ton, and by comparison, wheat at $33 a ton on a 200 ton unit basis. Wheat produces 560 pounds of alcohol, with 420 lbs. deductible to pay for the wheat but wood will produce 380 lbs. alcohol with but 26 lbs. deductible to pay for the raw materials. But with wheat, labor and equipment costs are less. Alcohol costs per gallon, with pure wood, 4 cents for wood, 4 cents for other raw materials, 8 cents for equipment, and 5 cents for labor, or 21 cents a gallon on a 200 ton daily output or 4,000,000 gallons per year. Twenty-one % alcohol can be extracted from wood; and 45 % from wheat. One ton of wood produces 2800 gallons of solution, 1100 pounds of sugar, and 55.6 gallons of alcohol."

NEARLY 150 NORTHWEST leaders of science, industry and agriculture attended a meeting of the Wash. State Chemurgic Committee in Longview, Wash., Nov. 28, devoted to promoting greater use of forest and farm wastes. DR. H. K. BENSON (upper left), head of U. of Washington Chemistry, presided. RAYMOND S. HATCH (upper right), Research Dir., Pulp Div., Weyerhaeuser Timber Co., presented a paper by T. L. Swenson, Dept. of Agriculture Research Lab at Albany, Calif., on "Production of Tannin from Western Hemlock Bark."

Lower row (left to right): DAN NOBLE, Spokane, Agric. & Mineral Dvpmt. Dept., Milwaukee Railroad; R. B. WOLF, Mgr., Pulp Div., Weyerhaeuser Timber Co., who presided at luncheon, and HOWARD HUSTON, Asst. to the President, American Cyanamid Co., New York, who discussed "Progress of Chemistry in U. S."

Clark Van Fleet, manager of the government-financed wood waste alcohol plant at Springfield, Ore.: "The Springfield plant will handle 230 tons raw material dry basis per day; lignin will be used as fuel plus 25 units of hog fuel per day; 21 tons of calcium sulphate per day, and 12½ tons of lime constitute the principal materials from which to produce 55-60 gallons per day of alcohol. The unfermentable sugars are now the subjects of experiment; they can be used at least in the production of yeast.

"The market for alcohol will never fall below 350 million gallons after the war because we shall never dare risk our whoe rubber economy on the plantation product."

R. S. Hatch, Director of Research, Pulp Div., Weyerhaeuser Timber Co., Longview, read a paper by Dr. T. L. Swenson, U. S. Dept. of Agriculture's Western Research Laboratory, Albany, Calif., on "Production of Tannin from Western Hemlock Bark."

Intensification of effort on Western Hemlock bark resulted because of the Argentinian situation where all quebracho tannin is produced, and because the Eastern and Midwestern blight killed the chestnut trees and resulted in taking bark from the deadwood. Hemlock mixture is even in color, more flexible, and better for tanners' use, he said. Although the process on western hemlock was uneconomical in the past, hydraulic log barkers in western pulp mills have aroused new interest, because tannin can be extracted and yet major fuel values remain. Hemlock has sugars favorable to the process. Hemlock tannin now appears to be competitive on the domestic market.

It was pointed out that the cost of tannin is altogether too high when the log is barked in the woods, piled, dried, and either ground or shipped dry. (A paper by one of Dr. Hatch's staff members on use of hemlock bark for tannin is published on Page 35 in this issue.)

St. Regis—On the Air

● Women employed in the pulp and paper industry received a fine tribute in "Commando Mary," Red Network program on Dec. 3. "Commando Mary" (Ernesta Barlow) has been producing a series on "women in industry" and recently Kenneth D. Lozier, assistant to the president, St. Regis Paper Company, New York City, persuaded her to visit the company's multi-wall bag mill at Oswego, N. Y.

Northwest hemlock, Northeast and Canadian spruce, and southern pine, as well as the ladies, came in for laurels in the broadcast. A limited number of reprints are available.

AN ENTRY IN COMPETITION FOR THE SHIBLEY AWARD

The Extraction of Tannin From Waste Western Hemlock Bark

By WILLIAM PITTAM

Research Staff, Pulp Division,
Weyerhaeuser Timber Co.

Introduction

● Dwindling sources of chestnut extract coupled with a war-induced high production rate of leathers have resulted in a reduction of 40% in consumer inventories of tannin according to a recent survey.

The chestnut blight has made vast inroads upon the remaining stands of this species of tannin producing tree in the United States. This has caused a shortage of tannin that can only be relieved by opening new domestic or foreign sources.

Fortunately, this country has a vast untapped reservoir of tannin in the bark of the Western hemlock, one of the principal pulpwoods of the continental Northwest.

As a matter of national policy, as well as expediency, this source of tanning materials should be explored and developed, so that America need not be dependent upon foreign countries for the raw materials of leather manufacture.

The bark of Western hemlock (Tauga heterophylla) has long been known, as a source of tanning material.

The lack of development stems chiefly from the high cost of obtaining the bark in a usable form at the leachery coupled with the expense of transporting the extract to the Eastern tanneries.

Under these handicaps, Western hemlock extract could not compete with other domestic or foreign sources and show an attractive profit.

About ten years ago Charles C. Smoot and Ralph W. Frey of the United States Department of Agriculture (2)* made an exhaustive survey covering all of the phases of the production of tannin extracts from the waste bark and concluded that it could be done commercially at a profit, but that the margin would be small.

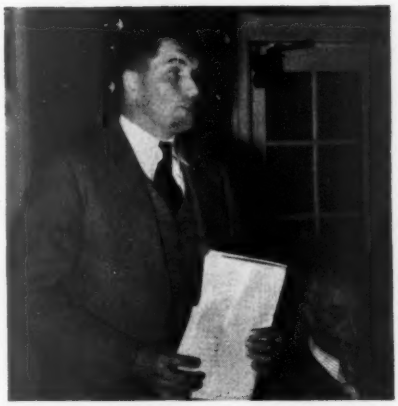
In addition, it was shown that the leather tanned with Western hemlock bark extract alone, or in combination with chestnut or quebracho extracts, was equal or slightly superior in most respects to leather tanned with any one of the other extracts.

Despite this encouragement no interest was aroused, and the matter has remained dormant until the present time.

About a year ago the Everett, Wash., mill of the Pulp Division of the Weyerhaeuser Timber Co. started the operation of a new type pulp log barker (3) in which the bark was cleanly stripped from the whole log by a high pressure jet of water. For the first time large amounts of almost wood-free bark were available at extremely low cost.

Other mills have, or are contemplating, installations of hydraulic barkers and, when all of them come into operation, a very great quantity of bark will be produced.

*Numbers in parenthesis refer to literature listed at end of article.



WM. PITTAM, Pulp Div., Weyerhaeuser Timber Co., giving his paper before TAPPI in Camas, Wash.

(Seated, right) W. B. VAN ARSDEL, who also gave a talk (greater part published in this issue).

While it is not as recent an invention as the hydraulic barker, spray drying under vacuum is now reaching full development. By this method, solutions of heat-sensitive substances, such as tannin, can be converted to a dry powder at low temperatures. This powder can be shipped at a minimum cost and dissolved at its destination for use in a liquid form.

The Raw Material

● Although many millions of board feet of Western hemlock are required for the production of pulp wood and lumber each year in the Pacific Northwest, the bark in the waste from the mills is mixed with wood substance to such a degree that it is unusuable for tannin extraction. Smoot and Frey (2) report that of two samples, one contained 41% by weight of bark and 59% wood, and the other contained 46% bark and 54% wood.

The wood itself contributes no tannin and, in fact, absorbs some of the tannin from the extract.

There is no practical means of separation of the woodbark mixture, and its value as a source of tannin is nil.

The only other feasible source of bark, until now, has been that produced by old-fashioned hand peeling methods. The bark can be spudded off at the logging site, in which case the difficulty and expense of getting it out of the woods is encountered. An alternative method is to bring the unbarked log to the pond or log dump where the bark can be spudded off. The latter has its drawbacks also; the most important being that a great amount of bark is lost in the logging operation and in subsequent handling.

Both methods are handicapped by the slowness and costliness of hand work, as well as by the fact that the bark is loose and easy to peel only about half of the year. In addition, the usual pulp log runs from twelve to forty inches in diameter with the average nearer the latter figure. This great weight makes handling the log during the peeling a problem.

In contrast to all former methods of barking, the hydraulic barker supplies all of the bark as a by-product whose cost of transportation and stripping is borne by the pulp log. The bark comes off the log completely and cleanly regardless of the time of year. The ratio of wood-to-bark is low and the volume handled is so large that losses in logging become inconsequential.

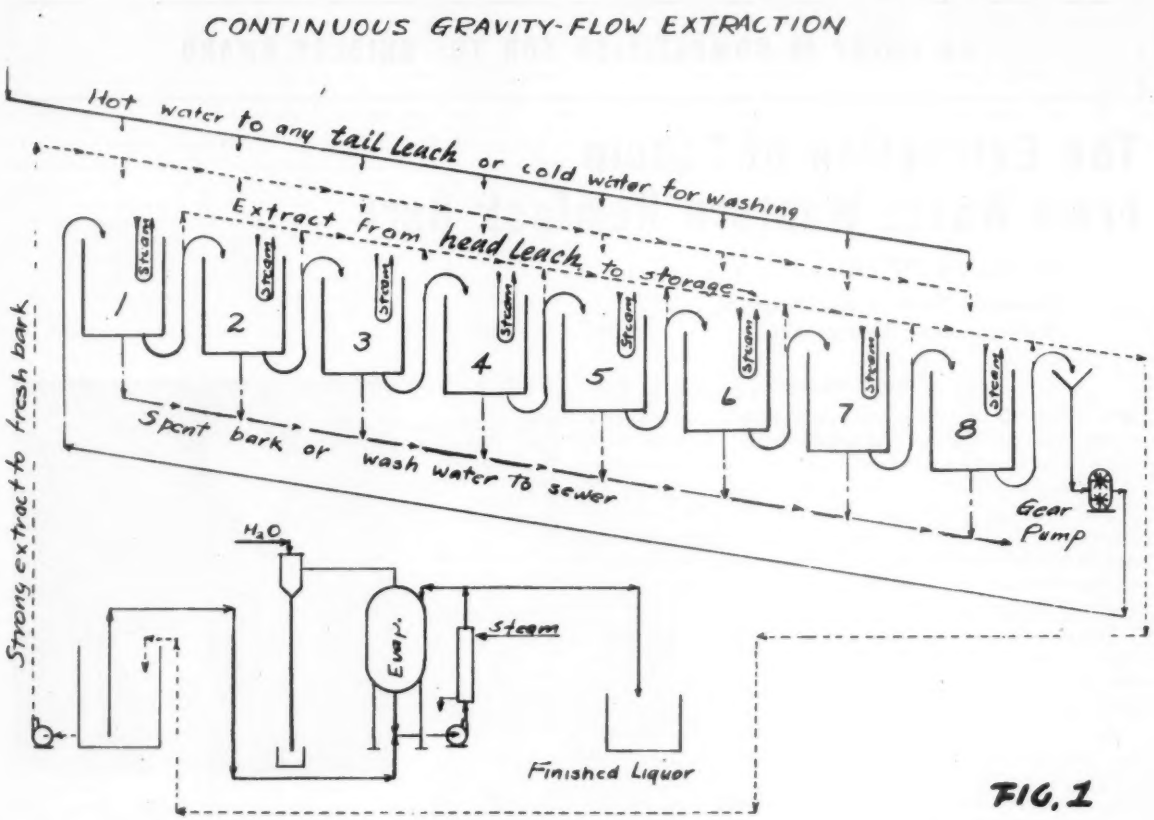


FIG. 1

The supply of pulp wood in the Northwest can almost be said to be inexhaustible. Western hemlock is a relatively quick growing tree and, with the policy of sustained yield in effect, there should be no problem of supply.

A survey of the bark available at the mill showed a day's production of the barker to be 40 tons of oven dry bark. Reduced to a pulp basis, this amounts to approximately one ton of dry bark per six tons of pulp.

The bark issuing from the chipping plant is in a form similar to hog fuel. In this condition it can be conveyed directly to the grinder. There must be no delay in processing the bark as fermentation begins almost immediately with favorable conditions.

The wood in the bark is present as slivers, which cannot be separated. However, the percentage is not large enough to be much of a handicap.

Over a period of a year the average per cent tannin in the bark used in the investigation was 6.15%. In contrast, Smoot and Frey concluded, from their own data and the data of others, that an average value of the per cent tannin in moisture free bark was 15.5%. Apparently the most soluble of the tannin was leached from the bark while the logs lay in the boom.

In addition, the analysis showed that the bark had gained on the average 0.2% of NaCl from the Sound water. This salt presents a complication which will be explained in more detail later.

Description of Pilot Extraction Plant

● When the pilot plant was first started, it was operated upon the continuous counter-current principle.

The apparatus used in both was substantially the same.

The leaching was done in a line of eight 42-gallon oak barrels of standard manufacture with tops removed. Each barrel was fitted inside with a false bottom of perforated boards raised about four inches above the true bottom. This was covered with a 20-mesh stainless steel wire screen. A two-inch hole was bored through the side of the barrel just above the screen and was fitted with a wooden plug as a washout port for spent bark. A one-inch hole, also plugged, was made in the side of the barrel just above the true bottom for complete drainage of the barrel.

In the continuous operation these barrels were placed stepwise on a ramp so that the top of each barrel was about a foot below the top of the preceding barrel. Passage of liquor from leach to leach down the line was provided by means of a ⅜" flexible tubing connecting into the "clear well" below the false bottom and leading up and over the surface of the next lower barrel. This tubing was punctured at its highest point to prevent syphoning and was adjustable in height so that the overflow to the next barrel could be regulated by raising or lowering the tubing in relation to the surface of the liquor in the barrel to which it was connected. The flow down the line was so regulated that the bark in each barrel was always below the surface of the liquor in the barrel and a steam coil was placed in this pool as a heat source.

A gear pump at the overflow of the lowest barrel on the ramp lifted that liquor to the top barrel, as only once in eight times was the lowest barrel the terminal barrel in the battery.

Hot water to any barrel was provided by a header.

In the batch operation the same leach barrels were retained but, instead of the ramp arrangement, were set on a level in individual cradles that were hinged so that they could be tipped forward to a horizontal position for dumping.

The space between the false and true bottoms was tapped and, by means of a short length of ¾" hose and a valve, each barrel was connected to a header leading to a gear pump. The pump discharged through a single-pass heat exchanger and another hose to the top of any one of the barrels.

Facilities for putting water through the heater for filling the tail leach were also provided.

The bark grinder was a typical swing hammer pulverizer fitted with a ½-inch plate. The hogged bark was shoveled into the hopper above and ground bark was removed from beneath.

The evaporator was assembled from various pieces if equipment picked up from mill salvage. The body was a 500-gallon cylindrical tank made of stainless steel.

A pump provided circulation from the bottom of the body through a heat exchanger back into the top. Vacuum was obtained with a jet condenser and hydraulic leg. As noncondensible gas was no problem no eductor was necessary.

A bark washing tub and a bark dryer were added late in the runs. Other equipment included platform scales, shovels, laboratory glassware both for analysis and control, thermometers, gages, hose, etc.

Description of the Operation

● The operation began with the grinding of the bark, which

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was delivered from the barker in skips of several tons capacity. The bark was ground only as needed. Some trouble was experienced with plugging of the screen below the hammers, but this was overcome when the size of the perforation was increased to one-half inch. The bark, being relatively brittle, was broken up to a meal, while the wood in the mixture was reduced to fine slivers. This wet ground bark was loaded into the leacher after weighing and sampling for moisture content.

At this point a step was necessarily introduced that admittedly makes this process a hazardous one with respect to profitable operation.

Tanners consider the presence of salt in any great concentration in tanning extracts as undesirable. The reason is obscure, but it is possible that the salt reduces the effective tanning power of the extract by precipitating some of the tannin. A salt removal step, therefore, must be introduced when bark from logs floated in tide water is used for leaching.

Obviously this salt removal can be dispersed with, if and when bark from Columbia River floated logs becomes available.

As stated previously, an average salt content over the period of operaton was 0.2% on an oven dry bark basis. If not removed all of this would end up in the extract at a very much higher percentage proportionately.

In removing the salt, advantage was taken of the fact that it was completely soluble in cold water, while tannin is not.

After the barrel was filled with ground bark, cold water was added in an amount sufficient to entirely cover the bark. This water was allowed to stand for a time, finally fixed at five minutes, before draining. At the expiration of the soaking period, the one-inch plug below the false bottom was pulled and the salt wash was caught in another barrel for sampling and weighing. This was repeated again to effect complete removal.

Later, the second wash was saved to become the first wash of a subsequent batch thereby cutting down the amount of tannin lost.

A typical salt wash is as follows:

Table I

	% Total Solids	% Tannin	% NaCl
First wash	0.638	0.148	0.221
Second wash	0.360	0.118	0.090

In order to paint a picture of what occurs in the battery of extractors, a flow sheet of the batch system is included as Figure 1.

In principle the continuous and batch operation differ only in the fact that in the continuous a small quantity of water flows through and out of the system at all times, increasing in tannin content as it moves from tail leach through the last batch of fresh bark, or head leach. In the batch system this quantity is allowed to accumulate and all the liquid in each leach is transferred at one time to the next one in line at fixed intervals.

Tannin extract is particularly sensitive to heat and exhibits a tendency at high temperatures to form condensation and polymerization products which are undesirable in the finished product. High leaching temperatures also bring more undesirable non-tannins into solution, thereby increasing the sludge content of the extract and lowering its purity. For these reasons all temperatures must be carefully controlled. The leach temperatures, especially, must be kept as low as is consistent with good yields and in no case allowed to exceed 70°C.

The extract is also easily contaminated by iron. Extract containing iron results in a dark colored leather.

Assume that seven of the leachers are filled with ground bark in various degrees of exhaustion of their tannin content. Referring to Figure 1, barrel No. 1 would have almost totally extracted bark covered with what amounts to hot water of no tannin content. Leach No. 2 would have less exhausted bark covered with a stronger extract, and so on down to barrel No. 7 which would contain the strongest extract and fresh bark. No. 8 barrel is full of wet washed bark and is waiting to be put on the line.

The extract in barrel No. 7 is pumped to a storage tank. The extract in No. 6 is pumped into No. 7. In turn No. 5 is pumped into No. 6 and so on until No. 1 is empty. No. 1 is then filled with hot water. Returning to No. 7, its contents are pumped into the fresh barrel of bark and so on down the line to No. 1 again, which is again filled with hot water. No. 7 then is partly emptied into No. 8 until No. 8 is full. Each leach is filled from the next strongest with the pumping cycle ended when all leaches No. 2 to No. 8 inclusive are full and No. 1 is partly empty. The bark and remaining water in No. 1 is "cast" and refilled with fresh washed bark ready to take its place as the strong leach in the next pump-over.

Figure 2 is a group of curves of tannin content of the extract just prior to a pump-over. Note that the steady upward progress of the per cent tannin in the extract is broken at the eighth barrel. This is caused by the dilution of the extract with the water left in the bark after the salt wash.

Not only does the presence of salt in the bark make an extra step necessary but in doing so a greater load is thrown on the evaporators.

An attempt was made to eliminate this slump and raise the per cent tannin in the liquor by drying the washed bark before leaching. Although that result was achieved, the modification was concluded to be uneconomical and therefore impractical.

From the storage tanks, the dilute tannin extract was pumped to the evaporator for concentration to 15% total solids. At that point it was pumped to settling tanks where it was allowed to cool and the fats and waxes were precipitated. Great care must be taken to preserve the extract from fermentation at this point.

The supernatant liquor was concentrated to approximately 40% total solids and shipped in barrels to the spray drier for final conversion to powder.

A typical analysis of the dry extract is as follows:

Table II

ANALYSIS OF DRIED EXTRACT

% Total solids	100.5
% Soluble solids	98.9
% Tannin	46.1
% NaCl	3.16
% Purity	46.3
% Moisture	5.0

Volume of sludge (cc in 100 cc of 10% solution) 12 cc

Upon sulphiting, which is passing SO_2 gas through the solution, all sediment disappeared. Sulphiting is a common treatment given tannin extracts to reduce the sludge content and improve the tanning action.

Analytical Procedures

Water content of fresh bark, washed bark, and exhausted bark was determined by drying a 100 gram sample for 24 hours at 105°C. The grams, oven dry weight, were reported as per cent oven dry weight.

The NaCl content of the bark was determined at various stages by an adaptation of a method given in Griffin (1).

The total solids content of the extract was obtained by weighing and drying in a similar manner as the moisture content of the bark was determined.

All tannin analyses of the fresh bark, spent bark, extract, and salt washes, were made according to specifications in the Official Method of the American Leather Chemists Association.

This method, which is too voluminous to repeat in this paper, may be found in The Chemistry of Leather Manufacture (4) on pages 417-423 inclusive.

Summary of Pilot Plant Operation

● In summarizing the results of the operation of the pilot extraction plant, these facts are immediately apparent:

(1) The residual tannin in the spent bark is too great for economical operation. Probably there are many cells in the bark which have been left sealed in the grinding operation and are unaffected by leaching.

This problem can be attacked in two ways. One would be to modify the grinding operation to effect greater refinement of the bark. The second would be to modify the extraction procedure by increasing the water-to-bark ratio, by adding individual circulation pumps and heaters to the leach tanks, and by increasing the time interval between pump-overs, and, possibly, by increasing the number of leach tanks. These last two have only limited possibilities because the large volume of raw material to be handled per day would make the plant too large.

(2) The temperature of leaching must be maintained at about 60 to 65°C. in order to keep the ratio of per cent total solids to per cent tannin in the finished extract as low as possible. Higher temperatures would throw too great a load on the clarifying equipment as well as adversely affect the color and quality of the extract.

(3) Care must be employed at all times to minimize fermentation and molding of the extract by keeping all vessels sterilized and covered. The sugar content of the extract provides an excellent culture medium for tannin-destroying molds and yeasts.

(4) The loss during salt washing is considerable. If some other way could be developed to remove the salt which would not also remove the tannin, some of the most soluble and desirable tannin would be recovered.

(5) Drying bark before extraction to bring up the solids content of the extract seems, on the face of it, to be too

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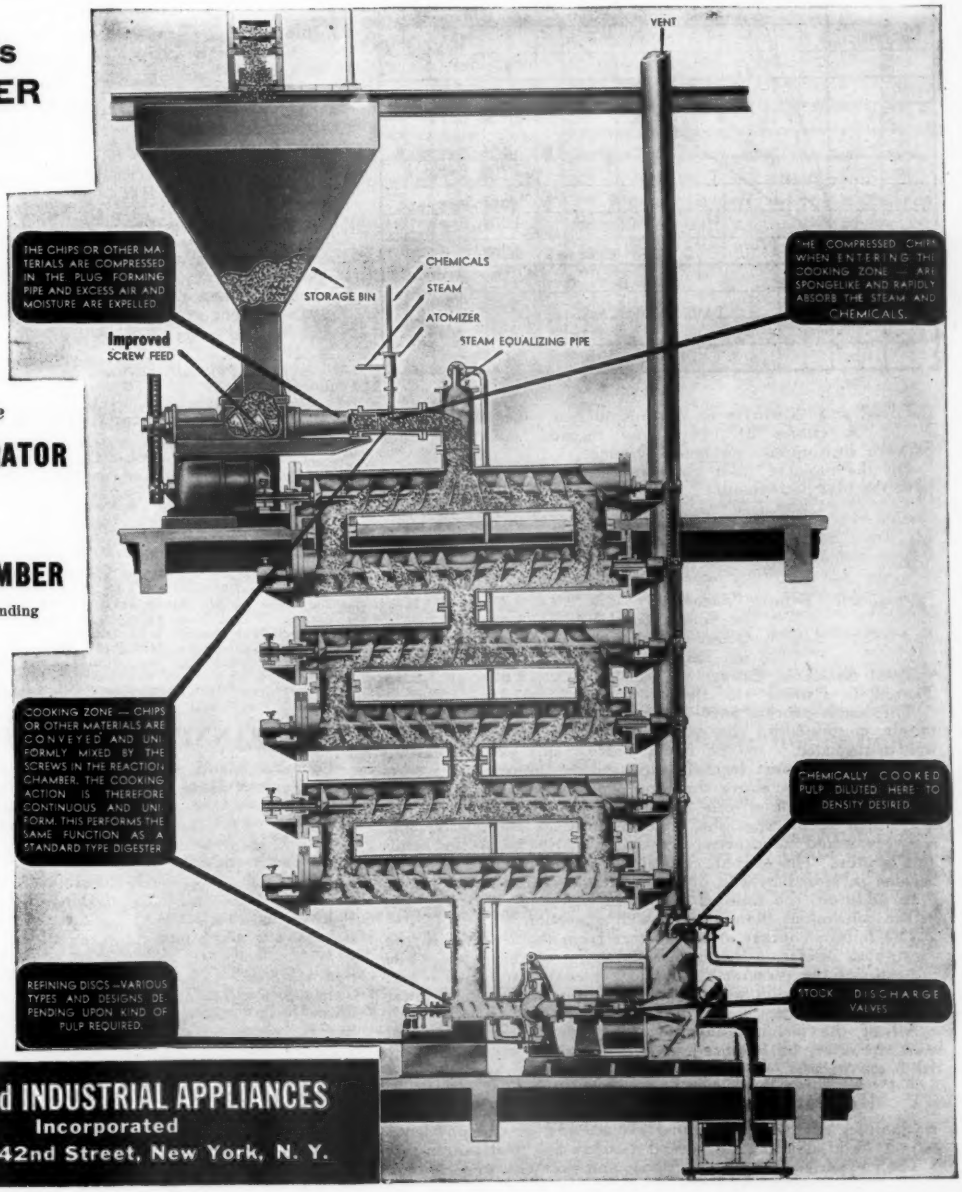
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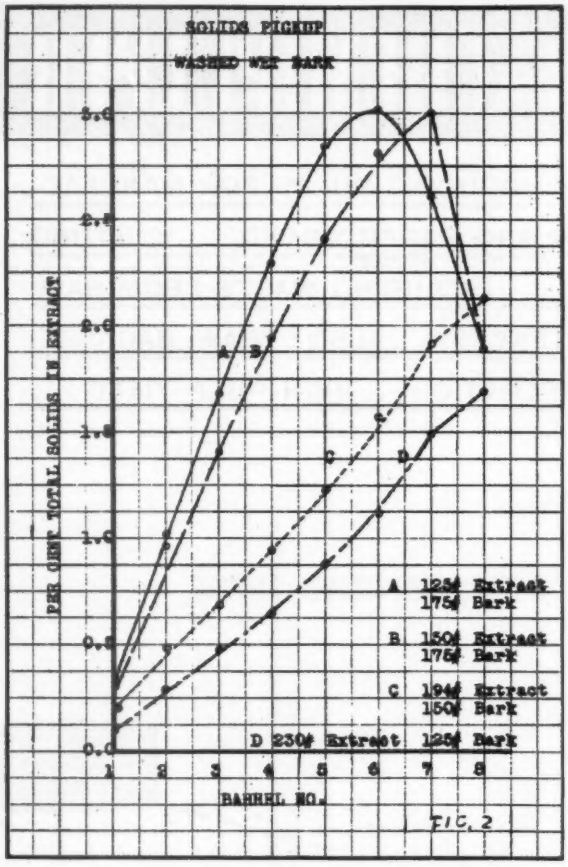

FIG. 2

involved and expensive to warrant such a procedure.

(6) A choice of operational method must be made between continuous and batch systems.

On the basis of pilot plant results, the continuous system gave the best performance.

Table III
COMPARISON OF SYSTEMS

	continuous (%)	Batch (%)
Available Tannin Recovered	50.25	59.1
" " in Spent Bark	23.45	27.7
" " Unaccounted	1.16	3.1
" " in Tailings Extract	11.56	none
Total Solids in Extract	2.62	1.52
Tannin in Extract (Pudity)	60.3	52.0

The batch process gave a somewhat better recovery if the tannin contained in the tail leach of the continuous system was disregarded. In the batch process this extract was all pumped to the next leacher, while in the continuous process only the quantity above the level limiting the syphon action was saved. If all of this liquor had been passed on to the next leach in place of the same quantity of fresh water, the recovery would have been increased by 11.56% of the available tannin. The over-all recovery of tannin would then have become increased by 2% of the available tannin.

In addition, the residual tannin in the spent bark was less in the continuous than in the batch operation.

The tannin content of the extract from the leachers in the continuous operation was higher than that of the batch, while the ratio of per cent total solids to per cent tannin was lower. This latter condition was, in all probability, a result of lower extraction temperatures and not too significant.

All of the seeming advantages of the continuous system must, however, be balanced against the simpler operation of the batch process.

Hemlock Extract As a Tanning Agent

● Samples of the concentrated extract and of the powdered extract were submitted to several tanners for trial tanning.

Their experiences bore out Smoot and Frey (2), who claimed good results from tanning with hemlock extract. The leather produced was of good quality and firmness but possessed a reddish cast. In some cases slight deposits of bark residues were visible.

The one unfavorable feature was the large volume of insoluble material to which the tanners objected on the grounds that it was a nuisance in the vats and tended to plug the pores of the hides.

The extract in all cases was used in a mixture of other extracts, chiefly quebracho and chestnut. Hemlock extract contains considerable impurities such as hemicelluloses and other polyoses which ferment to form acetic, lactic, and other acids all of which have a beneficial effect on the thickening of the hides. Because of this feature, some hemlock extract in the tannage is desirable, especially when such high quality leathers, as belting and sole leather, are being made.

There is a possibility that when conditions in the leacher have been improved by lowering the temperature of extraction to the point where the coloring matter does not go into solution as readily, lighter-colored leathers can be produced.

Vegetable Tanning Materials

	Pounds	Value Based on 1939 Average Prices
Chestnut extract	340,000,000	$ 8,400,000
Hemlock extract	7,600,000	360,000
Quebracho, equivalent solid ext.	130,000,000	6,200,000
Myrobalans fruit	11,000,000	400,000
Extract	2,500,000	200,000
Oak bark extract, 25%	13,000,000	470,000
Mangrove bark	3,800,000	130,000
Extract	15,000,000	750,000
Sumac extract	3,600,000	260,000
Valonia extract, 63%	1,500,000	120,000
Wattle bark	8,500,000	220,000
Extract	1,900,000	95,000
Gambier extract	3,800,000	340,000
Cutch extract	470,000	30,000
Fustic extract	350,000	45,000
Logwood extract	240,000	30,000
Hematine extract	110,000	30,000
Spruce extract	1,300,000	20,000
		$18,100,000

Note: This table was taken from the October, 1944, issue of "Chemical Industries," p. 549.

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(2) Smoot, Charles C., and Frey, Ralph W. Western Hemlock Bark an Important Potential Tanning Material. U. S. Gov't. Printing Office, 1937. (U. S. Dept. of Agriculture Technical Bulletin No. 556.)

(3) ———— "New Whole Log Barker and Chipper Installed at Weyerhaeuser Mill." Pacific Pulp and Paper Industry—17:26-30, 1943.

(4) Wilson, John Arthur. The Chemistry of Leather Manufacture. Vol. I, 2nd ed. New York, The Chemical Catalog Co., Inc., 1928.

This paper by Mr. Pittam was given before the Pacific Section of TAPPI at Camas, Wash., Nov. 14. It is the first 1944-45 entry in competition for the Shibley Award, presented each June by the Pacific Section for what is judged as the best paper presented at its meeting during the year by a mill employe. The purpose of the award is to encourage technical and research work of younger men and women in the western mills. Only employes of the Pacific Coast mills are eligible.

TANNING CONTENTS TABLE

Domestic plants with a known tannin content, according to "Oil, Paint & Drug Reporter":

	Percent of tannin	Located in
Hemlock	7-12	Bark
Black birch	3-18	Bark
Laurel Calif	16	Bark
Live oak	19	Bark
Palo blanco	26	Bark
Polygonum amphipum	22	Roots
	17	Branches
Red oak	35	Galls
Sitka spruce	12-18	Bark
Snow bush	17	Leaves
Sumac, white	15-25	Leaves
Tanbark oak	10-29	Bark
Other sources:		
Srpuce extract—sulphite cellulose	7-15	Bark
Spruce extract—sulphite cellulose	very little	Wood
Spruce extract—sulphite cellulose	29, with acid content	Liquid By-product extract

Paperboard and Cellophane Will Be in Demand For New Market Lines of Frozen Ground Fish

● An important new market for paperboard and cellophane is developing on the Pacific Coast with the phenomenal growth of the ground fish trawling industry.

Starting at almost scratch a few years ago, this industry already has exceeded tonnage of the great Pacific Coast halibut fisheries.

A new frozen filet packing business will be an outgrowth of the trawling activity. Wartime shortages of paperboard and cellophane presently are holding back this phase of the new development.

Once the bars are down after the war, however, this new western trawling industry may become greater than both the canned salmon and the halibut industries together.

That sensational statement was made to Pacific PULP & PAPER INDUSTRY by no less an authority than Harald Synnestvedt, general manager of the New England Fish Co., which now has become primarily a western concern. His opinion may be taken as unbiased, because his companies deal in all kinds of fish. Since he is not a pulp and paper man, his optimism regarding the future frozen fish business is considered as something worth lend-lending an ear to.

His company and others in the west are experimenting with ideas for this future frozen fish market.

"After trying several sizes, we have come to the conclusion that a five-pound paperboard carton that can be opened up and displayed is the ideal size and style." he said. "Each filet of fish would be hard frozen and wrapped in cellophane. The housewife can pick out any one she wants from the carton."

In 1941, he said, trawling of groundfish on the Pacific Coast brought in just 15,000,000 pounds. In 1942, about 30,000,000 pounds were marketed and in 1943 this figure jumped to about 65,000,000 pounds. Most of this was marketed fresh but when paperboard and other supplies are available, the shipping of the frozen fish to all parts of the country and continent will be facilitated.

Even so, the catch of ground fish already is exceeding the annual limit on the halibut catch as agreed to by the U. S. and Canada, which is 52,000,000 tons.

Right here we better explain to the uninitiated pulp and paper man that there are eleven varieties of ground fish caught on the western coast—several kinds of sole, ling cod, flounders, rock fish, skate, etc. A few years ago there practically was no market for this kind of fish from Pacific Coast waters.

The New England Fish Co. started a plant for packing and handling of these filets at Astoria, Ore. Now it has other plants at Ketchikan, Alaska, and Vancouver, B. C., and plans a new one at Everett, Wash. Other big fish companies are starting similar operations.

These plants of New England Fish Co. have packed limited quantities of frozen filets—limited, according to Mr. Synnestvedt to the amount of Fibreboard Products cartons and Du Pont cellophane he has been able to obtain under wartime conditions. Board and cellophane are going mainly to the army and navy and for other essiential uses.

It was back in 1929 that New England Fish first tried out cartons of frozen filets on the markets in Denver. The first trials were not so good. People were not ready for it. There were no facilities for quick distribution. But as time went on, the idea caught on. A laboratory record was kept.

The tremendous growth of public acceptance of the quick frozen food items in general has been a most important development to the pulp and paper industry which will mean new business after the war.

This has been true of poultry, meats and fruits and now marketers are seeking the new fish lines.

One of the biggest postwar developments promises to be the manufacture of refrigeration equipment. A new type of plastic double wall for refrigeration cars and rooms, needing no insulation, and with a vacuum between the walls, is expected to be a contributing factor to the frozen food business.

"We hope to have ourselves established with a full line of frozen fish for these markets," said Mr. Synnestvedt.

Paper Printing Plates May Revolutionize Publishing Industry

● Out of experiments which began nine years before the war has come an invention which today is serving many governmental agencies and may tomorrow revolutionize the mechanics of offset printing throughout the world. This invention is a flexible printing plate made of paper and plaskon resin glue.

Paper sheets are permanently bonded together with waterproof urea-formaldehyde resin and their outside surfaces are coated with three layers of a special alcohol and clay emulsion and the plate is ready for the engraving process. Such plates can be manufactured with existing machinery in practically any paper mill.

Experts of the offset printing industry who have tested the new plastic plate state that it not only restores certain advantages, lost when metal replaced stone as a printing base, but also adds many new advantages. With copper and other standard plate materials growing more scarce because of the war, the non-metal plate is looked upon as a "life-saver" by the nation's 4000 lithographers, who are hoping it will soon be released for their use.

Costing far less to begin with, the plastic plate will bring users savings in shipping costs, since each weighs but a fraction of a comparable copper plate. The non-metal plates require less storage space after being used and, unlike metal plates, do not have to be protected against damage from air or water since they are impervious to both.

The plastic plates are used in offset printing in the same manner as metal plates. Once it is sensitized with a solution of albumen bicromate of ammonia and the subject to be printed placed on it, the plate is inserted in a vacuum frame. On exposure to light from a carbon ray lamp, the image is transferred to the plate's alcohol resin surface. This exposed surface is then coated with developing ink, washed until the print becomes clear, and etched with a chemical solution. When the plate is clamped to a cylinder of an offset press the image is first imprinted on a rotating rubber blanket and then transferred to paper.

William C. Toland and Ellis Bassit of the Plastolith Co., Boston, Mass., invented the new paper printing plate.

Electric Power Restrictions Removed

Effective October 1, all restrictions on the use of electric power in the power shortage area of Ontario and Quebec were removed by the Canadian government. Similar restrictions were lifted in British Columbia November 2.

The chief effect of this order on the pulp and paper industry has been increased production at the Thorold, Ont., plant of Ontario Paper Co. British Columbia mills are not affected because they have their own independent power plants.

In eastern Canada the most important shortage has been in pulpwood rather than in power, and water shortage in the rivers was partly responsible. This situation has improved somewhat in recent months, and a large volume of pulpwood stranded in the rivers earlier in the season has reached the mills.

BANDED

FOR BETTER SERVICE TO WASHINGTON'S LUMBER INDUSTRY

★ The Seattle Branch of the Simonds Saw and Steel Company will be consolidated with the STAR MACHINERY COMPANY on January 1, 1945. This consolidation is being made in the interests of a broader, improved service to customers of both companies.

★ Lloyd Wray, Seattle Sales Manager, Ralph Scott, Ted Wahlstrom and "Bill" Purvis will

SIMONDS
SAW and STEEL CO.
SEATTLE BRANCH

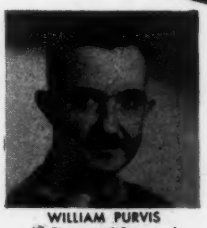
TOGETHER

continue to serve you as in the past. Their years of experience combined with STAR MACHINERY COMPANY'S knowledge of machines and production methods provides an unparalleled facility for Pacific Northwest industry.

★ The STAR MACHINERY COMPANY will maintain adequate stocks of Band Saws, Inserted Point Saws, and Circular Saws, and also Planer, Veneer, Barker, Hog and Chipper Knives, and Abrasive Grinding Wheels for your needs. SIMONDS present jobbing distribution remains unchanged except for the products mentioned.

★ The SIMONDS Saw and Knife Repair Shop, under the able direction of "Bill" Purvis, will be moved in its entirety to the STAR MACHINERY COMPANY. Your orders for these SIMONDS Products sent to the STAR MACHINERY COMPANY, Seattle, will be given the prompt and careful attention of the combined organizations.

J. M. TALLMAN
Manager of Mill & Woodworking Division



WILLIAM PURVIS
In Charge of Saw and Knife Repair Shop

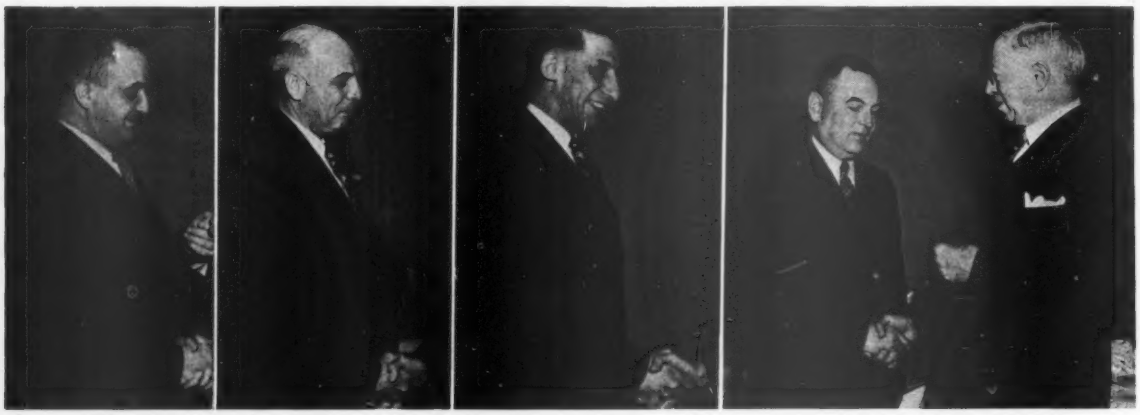
JOSH T. BOYD
In Charge of Supplies and Parts Department

RALPH SCOTT
Simonds Sales & Stock Control

NEALE WARNE
Simonds Sales Representative for Saws and Sawmill Equipment

BYRON LIEBEL
Simonds Sales Representative

Crown Z's War Work Profits Are Given to Uncle Sam; Olympic Peninsula Employes Assured of Future Jobs



LOUIS BLOCH (on right), Chairman, Crown-Zellerbach Corp., presenting 25-year service pin to EINAR W. ERICKSON, Resident Mgr., Port Townsend, Wash., Division.

Next in line (right to left) as they received their pins from Mr. BLOCH were: HAROLD QUIGLEY, Paper Mill Supt. for 25 years; and GILBERT B. THOMAS, Finishing and Shipping Bag Factory Foreman, and WALTER ROBINSON, Machine Tender, each for 20 years.

● Crown Zellerbach Corp. is turning back to the U. S. Government all profits made in war work done in the machine shops of all of its various mills and has also produced activated charcoal in a Seattle plant for the Chemical Warfare Service of the U. S. Army on a strictly no-profit basis.

In no boastful vein, but to point up a theme that their company "is human," Louis Bloch, chairman of the board of Crown Zellerbach Corp., made these disclosures to a 16th anniversary pin dinner gathering of employes of the Port Townsend (Wash.) Division in that city on Nov. 27.

He said machine shops in all the mills have given about two-thirds of their time to subcontract work for shipbuilders and other war plants and that the "exactly calculated profits" from this work are turned over directly to Uncle Sam after Crown Zellerbach receives its payments from the subcontractors. This has already amounted to over $1,750,000 and will probably be somewhere near the $2,000,000 mark when the work is done.

Mr. Bloch, who recently received his own 50-year six-jeweled pin in San Francisco, made the journey to Port Townsend to keep a date of long standing with E. W. Erickson, the resident manager, who received a 25-year pin from Mr. Bloch. When the Ericksons were married in Portland, Ore., in 1925, Mrs. Erickson, the former Hilda Bukowsky, was an office employ of Mr. Bloch's Crown Willamette Paper Co. From that time he has had a personal interest in the Ericksons and looked forward for a long time to this particular pin dinner.

Another 25-year pin went to J. Harold Quigley, paper mill superintendent of the Port Townsend kraft mill.

PARENTS AND WIVES OF SERVICE MEN, about to receive Crown Z. service pins for their sons and husbands from Chairman LOUIS BLOCH at Port Townsend, Wash.

(Left to right): MRS. WESLEY J. MARTIN, mother of Segt. Edward O. Will, paper inspector, now in army in England; MR. AND MRS. HENRY BISHOP, parents of Burford Bishop; MRS. HARRY J. HUYBERS, wife of Chief Elect. Mate Huybers, U. S. Navy, who was a beaterman, and MRS. TERRY V. MONAHAN, wife of Warrant Officer T. V. Monahan, U. S. Navy, who was in the chipping plant.

Quarter Century With Crown Z

Both of the 25-year pin winners came to Port Townsend when the mill was built in 1928, Mr. Erickson from the Ocean Falls, B. C. mill and Mr. Quigley from the old National Paper Products mill at Stockton, Calif.

Mr. Erickson was born in Musala, Finland, within the Arctic Circle in 1895. Mr. Quigley was born in Nevada City, Calif.

Einar W. Erickson was employed by Minnesota & Ontario Paper Co., Holland Paper Co. and the Canton, N. C., division of Champion Paper & Fibre Co., before joining Crown Z at Port Angeles, Wash. He then went to the Camas and Ocean Falls mills and, finally, to Port Townsend as pulp mill superintendent. Two years later he became resident manager.

Twenty-year pins were awarded to Walter Robinson, machine tender. and Gilbert B. Thomas, head of the finishing and shipping department.

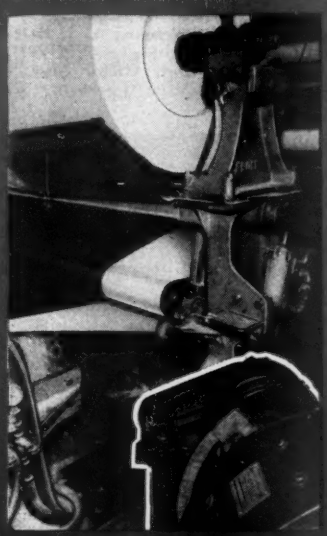
Sixty-four pins for lesser terms of service were presented by Mr. Bloch, including 19 to men in the armed services. The final event of the evening was the proxy awarding of a number of these pins to parents and wives of service men.

Perhaps the most dramatic event of the program was when Capt. Donald Gauthier, U. S. Army Air Forces, pilot of the Flying Fortress "General Ike," christened personally by General Ike Eisenhower, was called upon for an address. Capt. Gauthier, winner of the Flying Cross, Air Medal and other awards, who flew 32 missions over France and Germany, was asked to talk about war experiences but just couldn't go through with it . . . he ended up, instead, talking about his former job as roll wrapper in the finishing and shipping department of the mill. The dinner, he said marked his birthday, too, and the end of 21-days leave. Deeply moved, the audience stood and cheered him when he finished his very brief speech and later Mr. Bloch paid him a tribute.

A BREAK

the threading period. Independent of the width or strength of the web, it adjusts the speed of the winder motor to that of the supercalender drive. Tension on the "tail" is never too great. The operation is brought up to speed *quickly*, yet without a break!

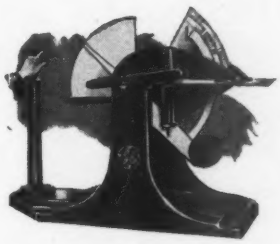
Dozens of other paper-mill drive control problems are being met *in new ways* out of G.E.'s unique combination of experience in (1) electronic and amplidyne control (2) paper-mill electrification. Better check your modernization plans with our application engineers. *General Electric Company, Schenectady 5, N. Y.*



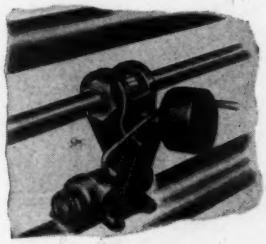
During threading of the supercalender (above), the speed of the winder is matched with that of the supercalender by amplidyne control of the winder

FOUR G-E TESTERS

TO HELP YOU STEP UP PAPER QUALITY

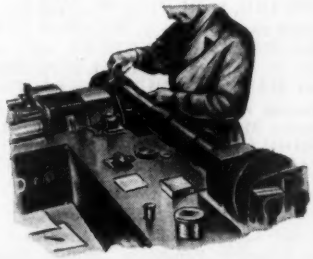


PUNCTURE TESTER
This tester measures the resistance to both puncture and bending of fibreboard, wallboard, corrugated board, plywood, and other container materials. The method, involving the puncture of material by a metal point on the end of a pendulum arm, has recently been adopted as a tentative standard by ASTM. (Bulletin GEA-4168 gives details.)



ELECTROLIMIT PAPER GAGE
Paper thicknesses from .003 inch to .030 inch can be checked continuously as paper of varying thickness passes over a calender roll. Paper thickness is controlled to precise limits. *(Refer inquiries to Pratt & Whitney, Div., Niles-Bement-Pond Co., West Hartford, Conn., which builds and sells this gage incorporating G-E electric parts.)*

G-E REFLECTION METER
This instrument measures the spectral reflection characteristics of paper according to the testing specifications of the Institute of Paper Chemistry, special calibration and standards being furnished by the Institute. High sensitivity permits measurement to 1/10 of 1 per cent on samples having reflection values of 50 per cent or more. (Bulletin GEA-8853 gives full information.)



RECORDING PHOTOELECTRIC SPECTROPHOTOMETER
With this device, colors can be matched and color standards established on a scientific basis, completely independent of eye judgment. It draws a spectrophotometric curve for any sample in five minutes or less, defining the color characteristics over the entire visible spectrum. Samples so matched will be identical under any light source. (Bulletin GEA3680)

GENERAL ELECTRIC

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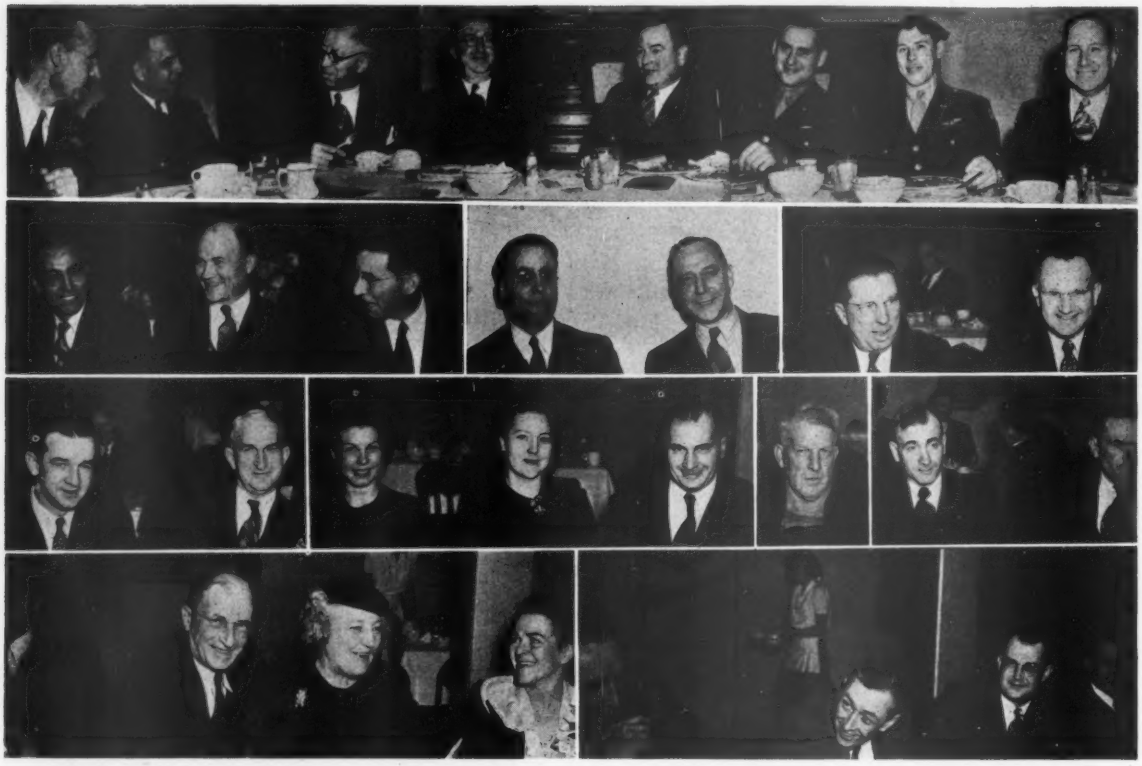
Buy all the BONDS you can—*and keep all you buy.*



AT THE CROWN ZELLERBACH PORT TOWNSEND, WASH., MILL'S Pin Dinner:
Top row is the head table (left to right): Rev. R. C. McCAFFEY, head of Ministers' Assn.; Lt. Commdr. NORRIS MILES, command of harbor entrance post; LOUIS BLOCH, chairman of board, Crown Zellerbach Corp.; WILLIAM D. WELSH, toastmaster; Maj. EARL OSBORNE, Fort Ward; Capt. DONALD GAUTHIER, ex-mill employe and Flying Fortress pilot, and OAKLEY W. DEXTER, assistant to vice president, D. S. DENMAN of Crown Zellerbach.
Second row (left to right): ELIHU SMITH, asst. chief eng., of Power Plant; GUY V. EMERSON, Pulp Supt.; LAWRENCE HARNEY, purchasing spvr.; CECIL BROWN, Wood Mill Foreman; HARRY BUKOWSKY, Plant Engineer; EDWARD J. DUPUIS, Backtender, and LEONARD ZIEL, Asst. Res. Mgr.
Third row (l. to r.): BARNEY T. MULLANEY, Personnel Spvr.; ARTHUR BOREN, Chairman, County Commissioners; Mrs. HARRY J. HUYBERS, wife of Beaterman now in Navy; Mrs. T. V. MONAHAN, wife of Chipping Plant employe now in Navy; MAXWELL LOOMIS, Safety Spvr.; CHARLES KUROEBER, Yard Dept.; E. F. DRAKE, Chief Electrician, and HAL TAYLOR, Pipe Line Foreman.
Bottom row (l. to r.): THOMAS GEDDES (his head partly out of picture), Paper Mill Tour Foreman; A. J. BOGAN, Master Mechanic; Miss ESTHER RAY, Secretary; Mrs. THELMA MILROY, Bag Machine Operator; RAYMOND D. BROOLING, Woodmill Dept.; J. Q. MERRILL, Order Dept. Supvr.; ELLIOTT C. IRVINE, Asst. Office Mgr., and WARNER B. CANFIELD, Stock Clerk.

Future Is Assured

● All Crown Zellerbach employes on the Olympic Peninsula "should have a comfortable feeling about the future of their jobs," said William D. Welsh of San Francisco headquarters and former newspaper editor on the peninsula. Mr. Welsh, who was toastmaster, said that the company owns 334,000 acres of timber, and is aggressively carrying out "intelligent postwar planning." He remarked that the Crown Zellerbach research staff "still has tricks in its bag."

Mr. Welsh recalled that in 1927 the Washington state pulp and paper mills payroll was only $4,855,000 as compared with over $20,000,000 in 1943. He said the payroll of four Olympic peninsula mills, all built since 1927, was $4,600,000 in 1943, almost as much as the entire state in 1927.

He called western hemlock "the Cinderella of the forests," recalling that a generation ago it went untaxed, was left in the woods by loggers and was rated as worthless by many of them. Today it is the basis of an Pacific Coast pulp industry which normally furnishes one-fourth of the market pulp of the nation and besides is the raw material for a great paper industry on the west coast. As a result of this development, he said, that where the peninsula had no mills before 1928, it now has four mills employing 2,000 persons directly, 2,000 more in logging and services and providing direct means of support of families totaling 8,000 persons. In one peninsula mill, he said, 62-20 years employes own their own individually styled and built homes. Seven out of every ten regular Crown-Z employes own their homes, he added.

Mr. Welsh introduced community leaders who were guests and also Oakley Dexter, assistant to Vice President Don Denman of Seattle, and Norman Lewthwaite, plant manager of the Seattle Charcoal Division on leave as pulp mill superintendent at Port Townsend.

Mr. Block praised "the wise guidance" of Mr. Erickson (who spends a day every week at the charcoal plant) and "the direct management" of Mr. Lewthwaite for success of the Charcoal Division, after it had been a failure under government operation for two or three years.

Mr. Bloch made an informal "man-to-man" talk to the pin winners and guests which was warmly received. He called the 23,000 investors in Crown-Z "my bosses" and described these investors and the company's 10,000 employes as a "family." He promised that Crown Zellerbach would never "lose the human touch."

The chairman of the board reminisced about his first job as a baler in a paper bag factory in San Francisco, his birthplace, at 7½ cents an hour, when "we had to do that job by hand—not foot pedals—and with heavy rope." He had sacrificed a career as a doctor in order that his brother might be one.

Pin Winners

● In presenting pins, with assistance of B. F. Mullaney, of the personnel office, Mr. Bloch had an intimate personal remark for everyone who came forward.

Fifteen year pins, by proxy, were given to the mother of Sgt. Edward O. Will, U. S. Army in England, who was paper inspector in the mill, and to the wives of Terry V. Monahan, of the chipping

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plant, a navy warrant officer now in the Central Pacific after service at Attu and Kiska, and of Harry J. Huybers, a beaterman, now a chief electrician's mate in the Navy in the European theater. Parents of Burford Bishop, also in the service, received his five year pin.

Among 15 year winners was Edward J. Dupuis, backtender, member of a family well known in Crown Zellerbach and the paper industry.

Other 15-year pins: Prentiss C. Bishop, August G. Brooling, Raymond D. Brooling, Edward Buse, Warner B. Camfield, William C. Clay, *Harry Sinclair Cotter, Howard Davies, John K. Davies, O. E. Edney, Gale Eikenberry, *Olene B. Engvoisen, Manuel Enos, Carl R. Erickson, Clyde E. Hackney.

Charles E. Hanby, Wilbur H. Hathaway, **John H. Hearing, H. P. Hirschel, S. C. Huffman, Ernest Kunz, *Charles Larsen, Harvey Larson, Willard Lindley, May Lucas, C. L. March, Pete Meister, M. E. Minnihan, Homer Moss.
E. J. McDougall, *Alonzo G. McManis, George C. Purcell, Esther B. Ray, Fred J. Simcoe, L. P. Stenstrom, Frank Stromberg, P. W. Sullivan, Hal Taylor, Arthur L. Tickner Sr., William Trager, Guy Whiteman, Abram H. Wilson, Harry Woolever, Ray Worley and John Zaccardo.

Ten year pins: John R. Hamey, Elliott Irvine, Charles Kuroeber, I. T. Larsen, *Kennet Lehman, *Edgar C. Sherman, John Siebenbaum, Lloyd Southmayd and A. M. Toner.
Other 5-year pins: *Willam E. Crutcher, Thelma Hooker Milroy, *Charles A. Horton, George W. Klasell, Walter J. Miller, *Charles W. Morris, *Jalmer I. Odden, *Eldon Okleberry, Harry Pollard, *Chester Richards, *Eric Russ, *Stanley Ryan and Egan Spindor.

*In armed services.
**On U. S. E. S. Leave of Absence.

LUNDBERG'S ARTICLES TO RESUME

An outstanding feature of Pacific PULP & PAPER INDUSTRY since the first installment in January, 1943—"ACID MAKING IN THE SULPHITE PULP INDUSTRY" by A. H. LUNDBERG—will be resumed on these pages in an early issue next year.

Installments of the next chapter will deal with the subject of construction. There has been a lapse in installments because Mr. Lundberg was traveling. It is contemplated eventually publishing the entire work in book form.

An Idea to Promote Paper Mills' Community Relations--Crown Zellerbach Gives "Know Your Industry" Dinner

● A community dinner unique in the pulp and paper mills public relations on the Pacific Coast was given to 350 invited guests from Camas, Wash., by the Camas mill of Crown Zellerbach Corp. on Nov. 9.

It took the form of a "Know Your Industry" meeting, for the purpose of expressing the inter-relationship between the community and the mill. Little was said which was new to the industry, but much was related which was entirely new to those who live in the town, advancing an idea that might be worthy of consideration to other pulp and paper mill communities of the United States and Canada.

Those introduced by the master of ceremonies, W. E. Welsh, executive assistant of Crown Zellerbach Corp., San Francisco, included the entire membership of Kiwanis, Lions, and Business & Professional Women's Clubs, the Chamber of Commerce, City Council, the high school faculty and the Camas Ministerial Association.

Mr. Welsh said, "This being Education Week, it seems significent that we have come here to talk a bit proudly about the Camas of Today and to pull aside the curtain a wee bit for a peek at the Camas of Tomorrow."

In discussing the return of service men, he said: "Depending on how carefully we fit them back into our associations may well depend the direction of social trends for the next quarter of a century."

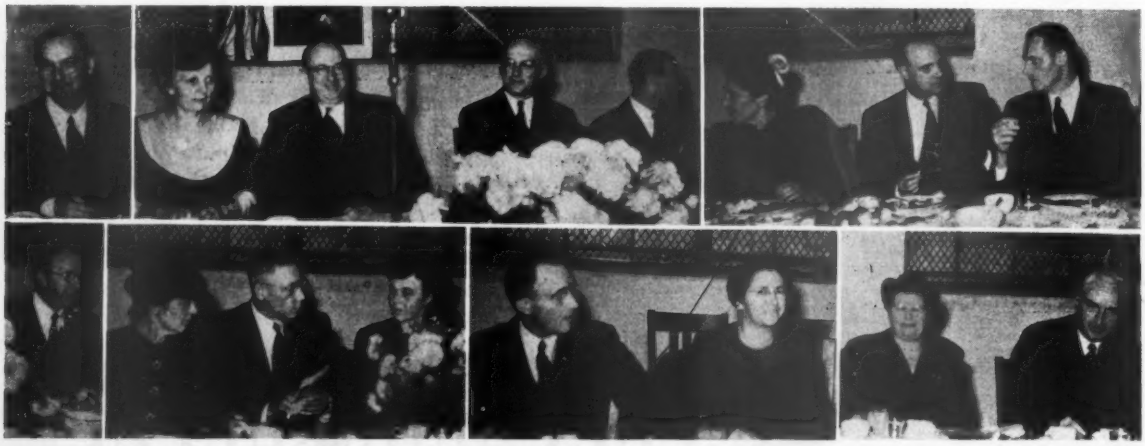
J. E. Hanny, resident manager, stated the mill and the community had travelled for 62 years together, and "had been dependent upon each other's company across those years. The proudest record to which this mill can point is that the majority of its people are homeowners."

He mentioned the mill's attitude toward safety and said "at the time Germany began her march through the low countries, there were more First-Aid trained men and women in Camas than in London."

J. D. Zellerbach, president of Crown Zellerbach Corp., San Francisco, presented a view of "Camas Tomorrow."

"More than 500 tons of paper and pulp roll out of this great papermill every twenty-four hours. Our job, as executives, is to find the markets for this paper, and to keep those markets. And if we do that successfully, then we would like you to regard us as citizens of these communities who are absent most of the time only because we are busy at the job of keeping your largest industry running."

Discussing acquisition of 334,000 acres of timber, he said: "We now have more standing timber today than we had 10 years ago."



First "Know Your Industry" dinner for a mill town community ever held on the West Coast—at Camas, Wash. These are mostly Crown Zellerbach officials and wives who attended:

Top row (l. to r.): Otto Hartwig, Safety and Pub. Relations; Mrs. J. E. Hanny, wife of Res. Mgr.; W. E. Welsh, Toastmaster; Mr. Hanny; J. D. Zellerbach, President; Mrs. A. G. Natwick; Frank Youngman, Vice President, and Mr. Natwick, Asst. Res. Mgr.

Lower row (l. to r.): Ed Stamm, Logging Mgr.; Mrs. Vic. Gault; Mr. Gault, Personnel Supvr.; Mrs. Vera Berney, Asst. to Personnel Supvr.; Mayor Harry J. Woodworth; Mrs. Woodworth; Mrs. G. W. Charters, and Mr. Charters, Asst. Res. Mgr.

A Stroll Through the National Chemical Exposition; Many Papermakers and Suppliers Had Exhibits

● With travel what it is today, not many readers of this magazine were able to attend the National Chemical Exposition in Chicago's Coliseum Nov. 15 to 19. But a representative of Pacific PULP & PAPER INDUSTRY was present and herewith is a first-hand-report of the show.

Papermakers and equipment and materials suppliers to the paper industry represented a remarkably large proportion of the 160 exhibitors. There were only about 100 participants in the last event of this kind two years ago.

Equipment companies of all kinds were dominant among this year's exhibitors, there being no less than 103 such firms represented. It is, perhaps, not surprising that so many paper companies and suppliers of paper companies were featured in the show since they are definitely among the nation's leaders in the chemical world today.

New chemical processes and treatments producing unusually high wet and dry strength bags and papers brought such companies as St. Regis Paper Co., Union Bag Co., Bemis Bro. Bag Co., Kimberly-Clark Corp., Filter Paper Co., The Container Co., Master Package Corp., and Angel & Co., to the show with a demonstration of their wares.

Marathon Corp. had an exhibit based on lignin products of its chemical and plastics byproducts plants under supervision of Vice President Allan Abrams, who was in Chicago.

Folders given out at the Marathon booth listed these products: Lignin Tans (used with vegetable extracts on leathers) Marabond (core binder for foundries); rubber compounding agents; lignin surface-active agents used for dispersants and emulsifiers; vanillin; catechol and other aromatics; Marathon's Resin 26; Lignolite (plastic sheet); laminating paper, lignin-enriched pulp and lignin-enriched filler.

The St. Regis multi-wall bag exhibit was interesting and indicated the 300 uses for these bags in holding liquid or heated or heavy dry products. One of the newest St. Regis bags is designed to package hot rosin and is sewn on top and bottom, except for a small opening for a 2½ inch rosin spout. The opening is stapled after filling and the rosin cools and solidifies. An inner ply is constructed to prevent hot rosin from penetrating paper and needle holes.

An especially attractive exhibit was set up by the Chicago sales office of Union Bag Co. for its heavy duty multi-wall bags turned out by the biggest single paper making operation in the world at Savannah, Ga. Bags for chemicals and a demonstration of paper strength featured this exhibit.

Bemis Bro. Bag Co. used a waterfall to demonstrate subjecting to 24-hour submersion its Aquatex waterproof closure. This closure has more recently been applied to their multi-wall bags.

Kimberly-Clark exhibited its Kimpak lint-free and soft paper wipes for precision instruments, a creped wadding product, and packaged like their facial tissues. Several styles of larger Kimpak wadding made in sheets and rolls for shock-absorbing packaging were displayed. Some were "dimple" embossed, another style "whipcord" embossed, etc., and crepe-kraft backing was used.

New Fiber Grease Drum

● The Container Co. of Van Wert, Ohio, showed a new fiber grease drum with metal ends employing a proofing to prevent penetration of grease in side walls and to eliminate chime leakage. Its "Stapak," with sulphite kraft side walls and enamel top and bottom, the strong "Fiberpak" in sizes from ¾ to 67 gal., and "Leverpak," 15 to 75 gal. sizes using a sift proof cover, held in place by a lever operated locking band, also were shown.

Master Package Corp. of Owens, Wis., showed their fiber barrels with laminated kraft sidewalls in natural color, wood ends and 22 guage steel bands. Large sizes weigh ten pounds less than corresponding size wooden barrels. The cover, with krinkled kraft gaskets, fits snugly and securely and the barrels are said to be completely insulated.

Filter papers for water, syrups, chemicals, acids, brines, oils, etc., were shown by ten different companies, lens papers by Angel & Co. and Filter Paper Co., and sensitized paper by American Photocopy Equipment Co.

Paper and Industrial Appliances, Inc., of New York, showed a model of the Defibrator-Chemipulper which has been installed in many mills to utilize coniferous and deciduous woods and waste from sawmills and veneer plants for a high yield, low cost pulp. Richard D. Kehoe, president, and others of his staff were at the exhibit.

IRVINE B. RABEL, treasurer of Star Machinery Company of Seattle, has announced that the Seattle branch of the Simonds Saw and Steel Co., will be consolidated Jan. 1 with Star Machinery Co. in the interests of a broader and improved service to customers of both firms. Lloyd Wray, Seattle sales manager, Ralph Scott, Ted Wahlstrom and Bill Purvis, all Simonds men, will continue to serve customers. Henceforth, however, their operations will be based at Star Machinery Co., 1741 First Avenue South, Seattle. They will be aided by J. M. Tallman, manager of Star's mill and woodworking division, Josh T. Boyd, supplies expert, Neale Warne and Byron Liebel, sales representatives.

Dow Chemical Co., Hercules Powder Co., and several other companies supplying chemicals to pulp and paper mills were represented.

The Dorr Co., whose recausticing equipment is used in the production of kraft pulp, and who make equipment for purification of water, etc., showed a small scale de-ionization unit for producing water equivalent to distilled water in quantities of 2 to 17 gal. per hr., comparable in principle to 900 gal. capacity units. Large photographs, showing pulp mill and other installations, were tied in with animated flow diagrams. William B. Gery of the Chemical Division was present the day the exhibit was visited by our representative.

Many Pump Exhibits

President R. O. Monroe was on hand for Johnson Corp.'s show of pressure joints and pumps.

Worthington Pump & Machinery Co. showed a recently developed corrosion resisting steam jet ejector (3-stage unit) made of porcelain and Karbite. Two acid-resisting Worthite centrifugal pumps also were shown.

About 25 pump companies in all had exhibits at the show.

Buell Engineering Co. showed their cyclones and industrial dust recovery system, with wide application in the paper industry.

Some of the more recently developed control equipment of Foxboro Co. was on display.

Wallace & Tiernan demonstrated improvements in saving labor, time and fuel and improving yields as a result of chlorine and other chemical control apparatus.

National Technical Laboratories, So. Pasadena, Calif., exhibited portable pH meters and automatic pH indicating and recording equipment.

Link-Belt Co. had an exhibit that indicated its prominence in the conveying equipment and machinery field.

Triangle Package Machinery Co. of Chicago showed a new automatic augur packer for powdered materials to be filled in cartons, bags, etc., said to increase production 25 per cent.

The Dicalite Co., makers of earth-base fillers for paper, showed new uses for their products in catalyst carriers and water purification. They combined pictures with exhibits to show the extent of their manufacturing.

Continental Diamond Fibre Co., Newark, Del., showed a paper laminate called "Dilecto."

There were 19 exhibitors of acid resisting materials or coatings. Coatings and caseins for paper were shown by half a dozen. Five companies showed newly developed adhesive. Cellulose products and derivatives were exhibited by all but one of the well known leaders in that field.

West Linn Man Killed

● Pfc. William W. McLarty, an employe for 15 years in the finishing room of the West Linn, Ore., mill of Crown Zellerbach Corp. was killed in action on Palau Island on Sept. 18.

Trade Talk

of Those Who Sell Paper

Postwar Predictions . . . Take Your Choice

● The San Francisco Club of Printing House Craftsmen held "Paper Night" Nov. 16, at the Engineers' Club, with O. S. Barrie, western sales manager of the Oxford Paper Co., as speaker.

Following the dinner the president, Andrew J. George, introduced J. A. Gruner assistant to the manager, Blake-Moffitt & Towne, program committee chairman, who in turn introduced Arthur W. Towne, vice president of BMT, and vice president of the National Paper Trade Assn., as chairman of the evening.

Mr. Barrie offered two alternative viewpoints as to the future.

"Optimistic Prospect: Immediate cancellation of all restrictive orders, OPA price ceilings excepted. Release of chlorine means return to brighter papers within 30 days. I checked the brightness record of a West Coast paper mill's sulphite pulp. It explains the present war quality in papers: 1940 average, 82.0; 1942, 69.4; 1943, 70.1; 1944, 70.1.

"Other qualities — strength, stifness, tear, etc., may come a little slower. W. P.H. may continue a control of pulp usage until inventories are brought to 500,000 tons over and above consumption. This may require 90 days. At the end of three months, papers may return to pre-war qualities and pre-war basis weights. Mill inventories of pulp would average 15 days or less. Reduction in use of pulp for nitrating will increase the allowable usage in each mill very quickly. Reduction in overseas shipments requiring strong fiber for packaging also will release considerable fiber. The demand for paper will be great! There will be no over-supply for some years.

"Pessimistic Prospect: Lumber will be scarce for some years. Labor for pulp wood cutting will not be available for some time. Pulp, as a result of wood shortage, will remain short in supply. Mills have operated for a number of years without adequate repairs. Due to reconversion of industries, machine parts, etc., etc., will be difficult to secure. Demobilization may take more paper than active offensive war. We shall have to furnish paper to occupied countries. There will be a shortage of labor in paper mills and printing plants. It may take advertisers a year before new products are ready."

Mr. Barrie's talk stimulated many questions. He predicted better color and brightness may return promptly but that printing quality must await the time when pulp will again be reasonably plentiful.

25 Yr. Pin Awarded

C. W. Hibbard, member of the sales department staff, Crown Zellerbach Corp., San Francisco, was presented with a 25-year service pin at a gathering in his honor at the Commercial Club. G. J. Ticoulat, sales manager of the coarse paper department, presented his pin.

BRUCE GARRISON, who succeeded W. G. Lambert as manager of the Salt Lake City Division of Zellerbach Paper Co., was a Lincoln, Nebr., boy, who attended Uni. of Nebraska. Was for ten years salesman and the sales manager with the Schwartz Paper Co. of Lincoln, then manager of Kansas City Div. of Zellerbach Paper Co., and when that division was dicontinued, he became sales manager of the San Francisco Wrapping Paper Dept.

Finds Ring

Imagine the surprise of D. D. Miller, San Francisco, Pacific Coast manager, West Virginia Pulp & Paper Company, when he opened a package sent to him by a New York lithograph firm, and out rolled a handsome 14 carat gold ring, in which was mounted a blue stone. A letter to the lithograph firm brought out the fact that the ring belonged to the shipping clerk who had wrapped the bundle, and that the clerk had been looking all over the plant for days for the ring, hardly expecting to find it in California.

Hecht, Finerty on Long Trips

V. E. Hecht, vice president, Zellerbach Paper Co., is back in San Francisco after a trip across the continent which took him to New York, Chicago and some of the mills in northern Wisconsin. Mr. Hecht returned via Los Angeles.

Another Zellerbach Paper Co. vice president, T. J. Finerty, is home after a trip during which he visited Boston, New York, St. Paul and Detroit.

Personnel Manager

Lester Miller, formerly personnel officer of Moore Dry Dock Co., San Francisco, and latterly with the Army Air Force at Hamilton Field, Calif., as administrative officer, is now personnel manager for the San Francisco and headquarters divisions of the Zellerbach Paper Co.

Knode's Trip Shortened

Samuel C. Knode, vice president of the Albermarle Paper Mfg. Co., Richmond, Va., made his annual visit to the Pacific Coast recently but had to curtail it on account of serious illness at home of his wife.

Landweer Named P. A. For Blake, Moffitt & Towne

● J. C. Whitelaw, manager of the Seattle division of Blake, Moffitt and Towne, has announced the appointment of W. H. Landweer as purchasing agent of the Seattle division.

Mr. Landweer has more than 24 years experience in the paper jobbing business. He joined Blake, Moffitt and Towne 12 years ago, and after several years as assistant purchasing agent, went into the sales department.

Wineman Heads Box Sales

● L. C. Peabody, director of sales for Longview Fibre Co., has announnced appointment of Paul Wineman as manager of box sales for the company, effective Dec. 1.

Mr. Wineman moved Dec. 15 from the company's plant at Longview to San Francisco. He will have supervision of box sales in district offices in Seattle, Portland, San Francisco and Los Angeles.

West Va. Co. Merger

● The West Virginia Pulp & Paper Co. of Illinois, an Illinois corporation, has been dissolved and all liabilities, assets, etc., have been taken over by the West Virginia Pulp & Paper Co. of Delaware, which was sole owner of the Illinois corporation.

The Pacific Coast office of the Delaware corporation remains at 503 Market St., San Francisco, and D. D. Miller remains as its manager.

Everett P. and P. Co Changes

● Two familiar faces are missing at the San Francisco office of Everett Pulp & Paper Co.

Miss Helen Harron, secretary at the Bay City offices of the company for 20 years, has resigned, and is enjoying a vacation.

C. M. "Jack" Ritchie, in the San Francisco office since 1936, has resigned and is now with Linde Air Products Co.

New Kimberly-Clark Office

● Kimberly-Clark Corp's West Coast office was moved from Los Angeles to San Francisco on November 28. Personnel on that date moved into the new headquarters at 155 Sansome St., San Francisco 4.

Army-Navy Paper

Any fears that a huge quantity of paper accumulated by the Armed Services may be declared surplus and thrown on the market are probably unjustified. The minimum inventory requirements for the supply of forces in the United States have been reduced from 90 to 60 and later to 45 days' supply.

Inventories in depots for overseas supply are being maintained at a 90-day level, but there is a belief in army circles that any surplus paper can be retained for future use by the government and not thrown into the civilian market.

PAPER

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In Canada: The Nichols Chemical Company, Limited • Montreal • Toronto • Vancouver

*Estimated American Paper Production for 1943

Questions Regarding Melamine Resins Cleared Up in Talk Before Chicago Group

● Many questions regarding melamine resins were cleared up in talk on the uses and qualities of this chemical made before the Chicago Professional Paper Group Nov. 20 by H. B. Freeman, of American Cyanamid and Chemical Corp.

He described melamine as a chemical synthesized from limestone, coke and air. Electric furnaces are used to combine limestone and coke. The resulting product is then combined with fixed nitrogen from the air. To form the product used in paper, melamine is reacted with formaldehyde, and the resulting resin then dried and powdered. The mills dissolve this powder in weak muriatic acid where microscopic colloidal particles of resin are formed. This material is introduced in the paper stock ahead of the wire, and the molecular particles attach themselves to the suspended fibers so that when the sheet is formed, the resin particles cure and form water insoluble links between the fibers.

Mr. Freeman explained that melamine resin is not a sizing agent and does not slow down the rate of water pick-up, but it does serve to bind the matted fiber even though the sheet become thoroughly water-soaked.

Some questions answered by Mr. Freeman:

Q. How do you handle the broke?

A. Mills handling their own broke, place it in the broke beater and heat to 180°. They then add 2% to 5% alum which hydrolizes the resin.

Q. Is wet strength due entirely to melamine?

A. Melamine does not take the place of rosin size which should be used in conjunction with it.

Q. What is the main difference between melamine formaldehyde and urea formaldehyde?

A. They are both from the same family. Melamine has a higher efficiency per pound of resin and is more stable.

Q. Does melamine retard ink drying?

A. Formaldehyde released in curing of melamine resins may slow down or increase drying.

Q. Is is necessary to adjust the pH of paper when treated with melamine.?

A. It is best to correct the pH as a hydrochloric acid present will lower it.

Q. What is the caliper of the stock that is being treated (heavy)?

A. Board sheets now using melamine run about 16 points.

Q. What is it in melamine to give higher wet and dry strength?

A. Melamine particles are discreet particles and are attracted specifically to paper fiber.

Q. Can starch and melamine be used in the beaters?

A. Starch and melamine are now being tested.

Q. Does melamine continue to cure without accelerators?

A. Yes, wet strength does not come up to standard for several weeks after paper is made.

Q. Can a surface application of melamine be made and used?

A. No, there is too much acid present in surface treatment. If used as a coating the hydrochloric acid of resin will attack the sheet surface. Ammonium sulphate may be used as a catalyst to accelerate curing.

Q. What is the optimum stack temperature for melamine treated paper?

A. The best temperature for rosin sizing is the best for melamine. The study is now going on.

Q. What is the per cent of retention of melamine and what effect does it have on the felts?

A. 70% to 80% is normally retained when used in board manufacture. Quantities as high as 95% have been reported on rag machines. Melamine is attracted to wool and will affect them if too much is picked up. However, careful operation can eliminate this condition.

Paperboard Production To Set All-Time Record

U. S. paperboard production for 1944 will total 7,850,000 tons, a new all-time high record, slightly over the previous best year in 1941, according to statistics presented at the National Paperboard Assn.'s annual meeting in (Waldorf-Astoria), New York, Nov. 16-17.

W. Irving Orborne, Jr., president, Cornell Wood Products Co., Chicago, was reelected president and Joseph S. Miller, president of New Haven (Conn.) Pulp & Board Co., was reelected vice president.

Italy's Paper Mills Resume Production

● The London Times states that liberated Italy has resumed the production of paper.

It is stated paper plants in Rome and Tivoli are manufacturing 200 tons of newsprint a month; and four large paper mills in the Liri valley and a cellulose factory at Foggia have resumed work.

Production in general, it is emphasized. is proceeding in face of a great dearth of raw materials, machinery, fuel, and power, but the allies are co-operating with the manufacturers in every possible way, and especially by assisting them to procure raw materials.

Harold R. Alley With Standard Cap and Seal

Harold R. Alley, one of the organizers and the first president of the Chicago Profession Paper Group (his term expired recently), is now associate research director of Standard Cap and Seal Corp., 1200 West Fullerton Ave., Chicago, Ill. He resigned from Tested Papers of America, Inc., but continues his activity in developing new and unusual paper uses.

David Flood In Philippines

● Staff Sgt. David J. Flood, attached to the Army Air Corps engineers in building airfields and son of E. E. Flood, pres. of Pacific Paperboard Co., Longview, Wash., was presented with the coveted bronze star "somewhere in the Philippines." He enlisted a year ago, after being employed in a civilian capacity with the Army Engineers in Alaska.

Arthur Lambert Dies

● Arthur L. Lambert, 64, night electrician of the West Linn, Ore., mill of Crown Zellerbach Corp., died of a heart condition just a month before he was to complete his 34th year of service.

Barber and Erickson Head East

● W. R. Barber, technical director, Central Technical Dept., Crown Zellerbach Corp., Camas, Wash., has left for an eastern tour which will include a lengthy stop at Appleton, Wis., in connection with the Institute of Paper Chemistry. E. W. Erickson, resident manager of the Port Townsend, Wash., mill of C-Z will join Mr. Barber at Appleton, Wis.

"E" for Charcoal Plant; No-profit Operation Praised

● The Army-Navy E was awarded Oct. 24 to the Seatttle Charcoal Division of Crown Zellerbach Corp., the only plant in the United States making activated charcoal out of wood.

After the presentation, the plant discontinued operation, having fulfilled its quota of the product used as filler in gas masks by the chemical warfare division of the U. S. army. A skeleton crew is maintained at the plant, ready to resume production immediately if use of gas by the Germans or Japs required such action.

In making the award to Vice President Frank N. Youngman of Crown Zellerbach Corp., Col. W. J. Lyon, commanding officer of the western Chemical Warfare Procurement District, said:

"You have produced the best grade of activated charcoal in the United States at a gratifying rate. The profits you made were turned back to the U. S. Treasury in full and I want to pay tribute to Crown Zellerbach Corp. for doing this."

The charcoal division was under general supervision of E. W. Erickson, resident manager of the Port Townsend, Wash., kraft mill. Norman A. Lewthwaite, plant manager, also came from the Port Townsend mill. Four men from the Port Angeles, Wash., newsprint and sulphite mill of Crown Zellerbach Corp., also were connected with the plant. These were O. S. Cauvel, technical advisor, on leave as sulphite superintendent at Port Angeles, and J. J. Gaudina, E. L. Howard and H. L. Day, the latter on leave as Port Angeles office manager.

Pacific Paperboard Gives Watches to 15-Yr. Employes

● Pacific Paperboard Co., Longview, Wash., held a dinner in its own dining room for members of the organization who had served 15 years. The plant has been in operation now for 20 years.

Gold watches appropriately engraved were given by President E. E. Flood to 11 men for 15 years "loyal service." They were: C. A. Goodrich; G. A. Vermillion; F. D. Armstrong; R. J. Millette; M. J. Hajek; W. A. Hess; Arvid Arvidson; H. B. Crawford, asst. chief engineer; K. W. Gordon, production mgr.; Arnold E. Maahs, asst. supt., and C. E. Paxton, traffic mgr.

There was also a special presentation of a watch to Catherine A. Sweet, whose husband was one of the founders of Pacific Paperboard. Mrs. Sweet has charge of the plant dining room.

In 1941 six other watches were similarly presented to Alex Duvey, now superintendent of Standard Paper Box Co., Tacoma, Wash.; H. H. James, personnel officer; Ralph Mason, chief engineer; Fred Fristad; John Teig and Fred Sailor.

USE OF HARDWOODS TO REVITALIZE

Northeast Paper Industry . . . Mills Will Be Rebuilt Many New Types and Qualities of Papers Developed

By LYMAN BEEMAN

Assistant to The President,
St. Regis Paper Co.

In the following talk, made recently at the Conference on New Developments in Wood Products at the New York State College of Forestry, Mr. Beeman discusses an unusually promising new field for the uses of hardwoods in the pulp and paper industry of New York and New England.

As he states, some of the biggest companies are planning to convert and rebuild mills to this end. It will not only open up a new field, but solve many presently serious production problems for these companies.

Wartime technical developments, as he indicates, may revolutionize the industry in that region. Just one of several favorable factors is the fact that higher yield and production rates are assured for the hardwood users than they were able to attain in using their now dwindling supplies of spruce.

● During the war period, developments in the manufacture and use of pulp and paper have been largely turned from their normal course to meet the needs of the war effort and to compensate for shortage in supply of materials and labor. Pressure of war has accelerated these developments through the institution of special research projects and the pooling of information and effort.

Probably the most interesting and important general change has been the broadening in the number of wood species successfully used on a commercial scale. At last southern pine has come into its own and no longer takes a secondary place in quality as a pulping wood. This is not confined to the sulphate process but includes the sulphite and grinding processes as well. Specification papers such as wet strength army map, multiwall sack, and many others formerly considered impossible to produce with southern pine kraft are being made in high quality. Necessity has provided the necessary technique. Dissolving pulps by both the sulphate and sulphite cooking methods, and groundwood printing papers are further examples of this new acceptance of southern pine as a quality pulp wood.

The gradual exhaustion of the coniferous pulpwood resources of parts of the country—a situation becoming particularly serious in the northeastern states—has focused attention on possible substitutes for these coniferous woods. During the past year a large amount of research has been undertaken by several leading manufacturers in the paper industry to supplement knowledge and experience as to the suitability of the hardwoods for paper manufacture. The results of many of these studies are unusually promising and it is reported that several large scale projects will be initiated immediately after the war to rebuild and convert existing mills to the manufacture of both mechanical and chemical pulps from these hardwoods.

This development should be of particular interest to the paper industry in New York State, which manufactures more paper products than any other state in the nation, but where a serious shortage exists in the supply of coniferous pulpwood. According to a report issued by the New York State Department of Conservation in 1944, there are in this State 3,200,000 acres of merchantable timber made up of 380,000 acres of softwoods, 1,700,000 acres of hardwoods and another 1,000,000 acres of mixed hardwoods and softwoods. It is estimated that the total stand of merchantable timber amounts to 26,000,000 cords of which 16,000,000 cords can be considered suitable for pulpwood. Of this 16,000,000 cords of pulpwood, 4,000,000 cords are softwood and 12,000,000 cords are hardwood. It is obvious, therefore, that the paper industry in New York State must rely more on its hardwood resources if it is to continue as an important factor in the industrial economy of this State.

The New York State College of Forestry initiated limited studies more than ten years ago concerning the possibilities of utilizing the New York State hardwoods in the manufacture of pulp and paper. Recently this work on the pulping of hardwoods has been intensified through the financial support of out-of-state mills who are interested in utilizing the native hardwoods of their own states and who have formulated post-war plans for manufacturing and merchandising the products in which these hardwood pulps will be used.

While high quality chemical pulps suitable for dissolving purposes and paper uses, can and are being manufactured from the hardwoods in appreciable tonnages, the most promising new methods for pulping these woods seem to be the application of short, mild chemical cooks to the chipped wood followed by passage of the treated chips through an attrition mill to finally resolve the chip structure into individual fibers. Processed in this manner certain hardwoods give strong clean pulps with yield up to 75% and which may be bleached to a satisfactory color with either chlorine or peroxide. Hardwood pulps of great potential value may be obtained by treating wood blocks with either acid or alkaline liquors of low chemical concentration, and then grinding to produce a mechanical pulp of excellent papermaking characteristics. A series of investigations carried out in the pulp and paper laboratories of this institution have proved that various hardwoods treated in this manner can be ground at the high production rate of approximately two tons per square foot of stone surface per day in comparison with spruce which grinds at the rate of about one ton per square foot per day. This high production rate is obtained at a very low power consumption, this being in the neighborhood of 25 h.p. days per ton in comparison with spruce which requires 50 h.p. days per ton.

Some of the pulps produced in this manner have exhibited strength values nearly equal to those of spruce groundwood pulps and bulking values even higher than most spruce pulps. The yield of pulp per cord of hardwood is, of course, considerably higher than that obtained from spruce due to the fact that the air dry weight of the hardwoods is 34 to 44 pounds per cubic foot in comparison with the spruce at 23 to 29 pounds per cubic foot. It seems possible that the many factors which are favorable to the production of this type of mechanical pulp may completely offset the cost of the chemical pretreatment.

Mechanization Increases

● With the labor shortage which has come with the war effort there has been a necessity for mechanizing pulpwood cutting operations. The use of tractors in the woods and of loading and unloading equipment has been accelerated and power saws have come into general use in many parts of the country but particularly in the Southern pine stands. Peeling operations have been restricted considerably and barking equipment improved and installed extensively. Probably the most interesting development in barking has been the perfection of hydraulic barkers to handle the large wood on the West Coast and which is reported to give a saving of 15 to 20 per cent in wood which was formerly lost in the slabs from the cut-up mills. In the East a smaller type of hydraulic barker has come into use which is reported as being successful on small pulpwood.

The peroxide bleaching of groundwood and other pulps has continued in development but because of the shortage of bleaching chemical it has not continued at the high rate expected. Enough peroxide has been available, however, to keep one or two commercial bleaching plants in operation with the improvements in technique which come through continued operations. Many people believe that after the war this bleaching method, particularly applied to groundwood, will find wide acceptance.

In parallel to the situation with peroxide bleaching, the machine coating of paper has continued in developments at a slower rate. Most progress has been made in the adaptation of size press equipment to the application of coatings. New knowledge of clay and a better appreciation of its collodial

$3,000,000 Expansion for St. Regis Deferiet Mill; Three Machines to Make Machine Coated Papers

● R. K. Ferguson, president, St. Regis Paper Co., has announced a $3,000,000 construction and expansion program for the Deferiet, N. Y., pulp and paper mill, one of six St. Regis mills located in northern New York.

The program includes installation of a new high speed 212-inch Fourdrinier paper machine, expansion of capacity to manufacture bleached sulphite and bleached groundwood pulps, with a battery of the latest type Roberts grinders, a new steam plant and a new bleaching plant. Three paper machines will be equipped to manufacture machine coated papers for the catalog and magazine publishing fields.

Increased tonnage of better grades of groundwood magazine and printing papers is necessary to supply existing and indicated demands.

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properties have been an important factor in this improvement in machine coating. In general the clay producers have used this new knowledge to develop special grades through separation of the fine particle elements from the crude clays. New type adhesives derived from starch and developed from synthetic resins will, no doubt, play an important part in postwar machine coatings.

Critical wartime shortages developed earlier in metals than in paper, and it was logical, therefore, that the War Production Board, Army and Navy engineers, TAPPI and research departments of individual paper companies should use their best minds in seeking substitutes for the scarce metals in the then plentiful raw material of paper and board.

It is well known that paper and paperboard are among the most adaptable of raw materials for the making of innumerable products of differing types and qualities. How they could be used as substitutes for the ever-growing scarce products was the pressing problem. The War Products Development Section of the Paper Division, War Production Board, became the clearing house for all new ideas for new paper products. This section noted the specific requirements of the Armed Services and challenged industry with them. Test after test was made until a final product was formed which satisfied a particular war need. The products thus developed in the war years are numerous, but broadly speaking they fit into six major fields: (1) the wet strength field; (2) the waterproof field; (3) the moisture vaporproof and other impervious sheets which have revolutionized the packaging field; (4) the resinous products field; (5) special industrial papers, and (6) many other items which can only be classified as military paper products.

Wet Strength Developments

● 1. The term wet strength, although actually long in use in wrapping and bag papers, was first applied to towels and tissue paper and then to the primary wrap for frozen foods. The Army Map Service early in the war not only realized the limitations of rag production for the quantities of maps needed, but also the desirability of having maps that could be used when wet, that would not stick together, and could be read at the folds. From the methods used for making frozen food inner wraps, the idea of a sheet made from pulp that was treated chemically to maintain flexibility and yet retain strength when wet or greasy was developed. By trial and error tests of actual war uses in all parts of the world, a map paper was developed which has the following characteristics when wet or greasy: high opacity, low expansivity, high tearing strength, ability to take ink after erasure, and flexibility.

A wet strength paper for parachutes, having a high machine direction tensile strength, is now being tested by the Bureau of Aeronautics for use in dropping supplies. A 16-foot parachute has a capacity of 100 pounds and a discharge rate of 180 miles an hour. It opens quicker than textile parachutes and may be opened at lower altitudes. It is made from a fifty-seven pound kraft sheet, creped two and a fourth to one. It is designed to be used once and it is therefore desirable that paper which is cheaper than fabric be used for this expendable item.

Several other papers have been made more useful because of their wet strength qualities, as for example, lens tissue, which was developed as a substitute for Japanese tissue. It is as serviceable wet as dry, which was not the case of the imported sheet. In addition, it has a high grit—and lint-free content and a protective quality, achieved through creping, which the foreign tissue did not have. Moreover, its cost is a fifth to a sixth of the imported product. A cheaper grade of the American lens tissue, used for wiping cloths for binoculars and machinery by the Armed Services, has been found to be so useful that it is expected to become an important household item after the war.

Some other satisfactory developments in wet strength papers include: A wet strength greaseproof substitute for parchment; a wet strength laminated kraft bag for sand and other commodities to replace burlap; and a wet strength substitute for binders' twine. A certain percentage of Mullen retention when wet is found in several of the improved special industrial papers which will be discussed later.

After the war the production of wet strength map paper will undoubtedly taper off, but the method used successfully for that paper will certainly be applied to more and more industrial and sanitary papers in order to increase their serviceability.

Waterproof Papers

● 2. Waterproof papers and boards have long been an important group in the industry. However, techniques have been perfected and new uses have been developed during the war. Waterproof liners for containers was one of the first developments in protecting overseas shipments. Early in the war a watertight container was not believed to be possible and the "creation" late in 1942 of the V-Box still remains a miracle to many in the industry. After immersion in salt water for 24 hours, the solid fiberboard has an average bursting strength of 500 pounds. The European invasion would have been far more difficult had the V-Box not made possible the safe arrival of equipment, food, and other necessary army provisions.

The most far reaching development during the war in waterproof paper, however, is the discovery of a waterproof closure device. By the application of a special solvent, a tape has been developed that makes possible a completely waterproof closure without which no waterproof box or bag is effective.

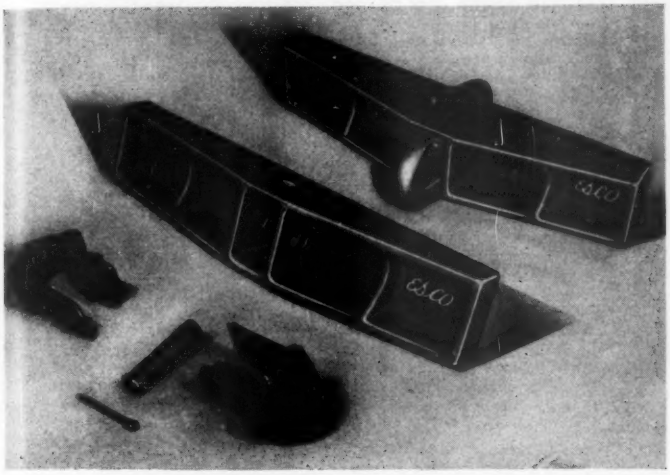
Another important war develoment is a water-resistant label paper which meets the Army's demand for the safe arrival of a particular shipment. In this case the water resistant quality is achieved by a special sizing method rather than by lamination, as in the case of waterproof shipping sacks.

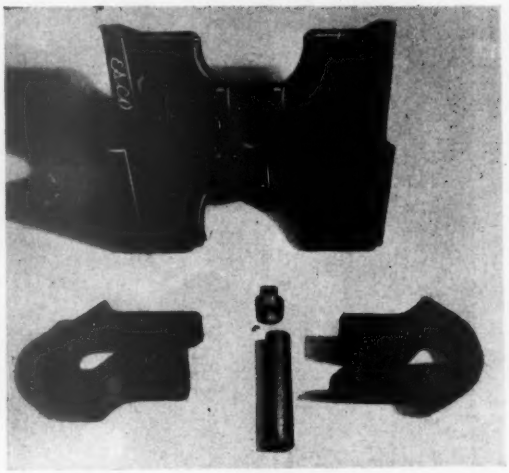
The paper industry took the next logical step and developed a waterproof shipping envelope which may be opened in order to examine important papers and then reclosed. Navy tests on the new product show that, after immersion in water for fifty hours, the humidity inside the envelope does not change sufficiently to be measurable. Moreover, the envelope can be nailed onto a box and still remain waterproof. In use also by the Armed Services is a water-resistant shipping envelope which will not meet the test of immersion but which may be used on boxes stored in the open. As long as water has a chance to run off, the contents of the envelope are protected. Other important war developments in the waterproof field include paper tarpaulins and other canvas substitutes which were available before the war but which have been perfected and refined as a completely satisfactory product for protecting war material while in storage, particularly in the South Pacific. The paper substitute has been developed to withstand both extreme cold and hot temperatures. Its usage has increased fifty-fold since the war and promises to compete favorably with canvas in some respects after the war.

Waterproofing methods have been applied to panel board to substitute for wood as forms in concrete work. The paperbard can be left in to give a cellular type of insulation in a building foundation. It is likely that this waterproof building

ESCO

CONVEYOR FLIGHTS AND LOG HAUL CHAINS





A new line of conveyor flights and log chairs for use where continuous service is imperative. The flight bodies are steel, using box construction design, recognized as one of the strongest forms of engineering practice. Being of steel these flights are readily straightened if bent and welded when necessary. The manner of chain connecting the several chain sections is unique in that the flight body does not form a part of the chain length. The connecting or hinge links are so designed as to be stronger than the chain links themselves. The method of connecting the hinge links on which the flight body rides is such that the pitch of the member is maintained, thus insuring smooth running of the sprocket. ESCO has applied this detachable principle to log chairs and can supply the trade with a variety of sized chairs to fit all sizes of long link log haul chairs. The connecting hinge links can be supplied to run with steel, dredge iron or manganese steel chains.

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20"
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24" Special high side
24" Spec. horizontal link

For 1⅛" and 1¼x6 and 7" long link chain
Regular Duty
16"
18"
20"
24"
28"
30"

For 1⅛"and 1¼x6 and 7" long link chain
Heavy Duty
12"
16"
18"
22"
24"
28" Special, high side
30"
34"

ESCO LOG CHAINS — STOCK SIZES

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board will enter construction after the war to effect a low cost type of insulation.

Other Impervious Papers

● 3. The wartime development of impervious sheets other than waterproof papers, and which are impervious to moisture, bacteria, mold, insects, light, foreign odors, oils, and gases to varying degrees, has had an important effect on the whole packaging field. Because of the intense interest shown by the Army and Navy since the beginning of the war in perfecting packaging mediums, it was inevitable that great strides would be made in this field. Dozens of new products have been developed, each one designed to meet a particular packaging need. Of equal importance with packaging food is the packaging of ordnance and other Army equipment, airplane and machine parts, fire control apparatus, medicines and chemicals.

The most important items in this field are: Greaseproof A., B., and C., butvar and other vinyl coated sheets; Pliofilm; saran; and X crepe. The greaseproof type of material used, developed early in the war, is creped in duplex combinations to give it greater flexibility in packaging small precision instruments. These moisture vapor barriers may have a kraft base, creped or smooth, or a glassine or greaseproof base laminated with various plastic adhesives to lead and aluminum foils. Wartime research has developed closing devices for bags made of these sheets, which are as impervious as the paper itself. The new packaging material has also done a civilian duty. Without question these new sheets in their perfected forms will take an important place in the packaging world after the war.

Resinous Products Field

● 4. As a base for plastics, paper when impregnated with various synthetic resins has for some time been used for a growing number of articles. With the incentive of the increased war demands and the scarcity of metals, the resinous field has opened up a great many opportunities for paper, as is evidenced by the increase in annual paper tonnage going into these products. In 1942, 8,540 short tons of paper went into plastics; in 1943, the tonnage jumped to 24,445; and in 1944 the increased production has continued.

Some paper tonnage has gone into various airplane parts, such as gunner's seats, turrets and ammunition boxes. Considerable tonnage has also been used in the manufacture of rocket launchers and bomb bursters, and in this field paper-base plastic proved superior to metal.

Special Industrial Papers

● 5. In the broad field of special industrial papers, a number of developments have taken place which cross the above mentioned fields. Borrowing from the methods used in the manufacture of paper-base plastics, a type of wet strength paper has been produced which is extremely effective for shipping tags. Imparting to them a strength never achieved before in tags, overseas shipments now have a far greater chance of reaching their planned destination.

A new and stronger type of tabulating card stock and teledeltos papers have developed during the war. Other developments in the special industrial field include: pressure sensitive tape which has been refined and its use extended during the war; paper which has satisfactorily replaced cork on cigarettes; sanitary food container stock which has been improved and extended to such items as the well known blood plasma containers.

The Armed Services have developed many other items from paper which have aided the war effort. Chief among these are ammunition papers of various kinds, projectile or shell containers, and bomb rings or bands developed to replace steel and found to be better than steel. Other special war papers cannot be discussed until after the war.

In these new developments and particularly in the utilization of hardwood resources there is a splendid opportunity to revitalize the paper industry in the State of New York and to arrest the decline in pulp and paper production which set in sometime before the outbreak of the present war. The State is unusually fortunate in two directions: first, the splendid hardwood resources and second, the availability of the research facilities of the New York State College of Forestry where the necessary techniques for utilizing these new resources of raw material may be developed. Prompt action should be taken to work out a cooperative arrangement between the industry, the State and the University, whereby these resources may be utilized to the greatest advantage of the paper industry in the State of New York.

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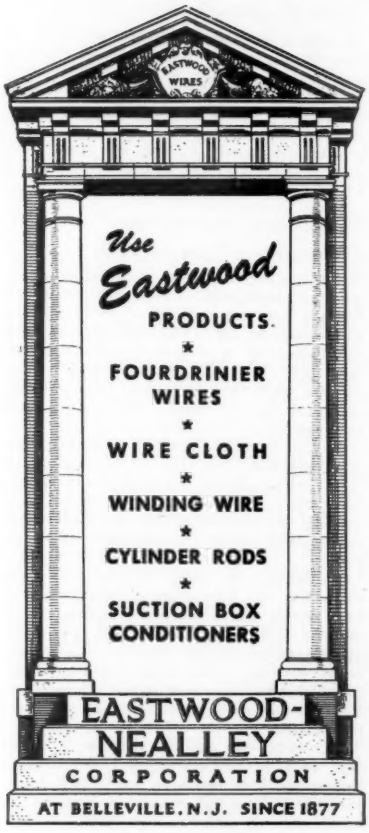

Quebec Pulp & Paper Sale Is Expected

● Sale of assets of Quebec Pulp & Paper Corp., placed in bankruptcy more than two years ago, is regarded as a likely development within the near future. There is evidence that the Quebec government is anxious to settle the case as soon as possible, and changes have already been made in representatives of the creditors, largest of which is the government.

Quebec Pulp & Paper's chief asset is timber land—about 5 million cords of pulpwood of which some 4 million cords is freehold. Others are mill properties at Chicoutimi and Val-Jalbert, Quebec waterpower sites and buildings. The company has $950,000 in cash, and government bonds.

Price Bros. and Aluminum Co. have been reported as interested in the property, and a new group is now said to be negotiating.

When the present company was formed in 1927 about $10,000,000 was paid for the assets.

Machine Made in Wartime For Tennessee Mill

● One of the rare wartime pulp or papermaking machine construction jobs allowed by government regulation was completed recently by Bagley and Sewall Co., Watertown, N. Y. This machine was for Southern Chemical Cotton Co., Chattanooga, Tenn., for a special product in demand because of the war. It was not entirely a new machine, but was redesigned and rebuilt in Watertown.

It is now in operation at Chattanooga.

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•

We of the Puget Sound Power & Light Company accept the challenge and will do our utmost to continue to deserve and hold your confidence and esteem.

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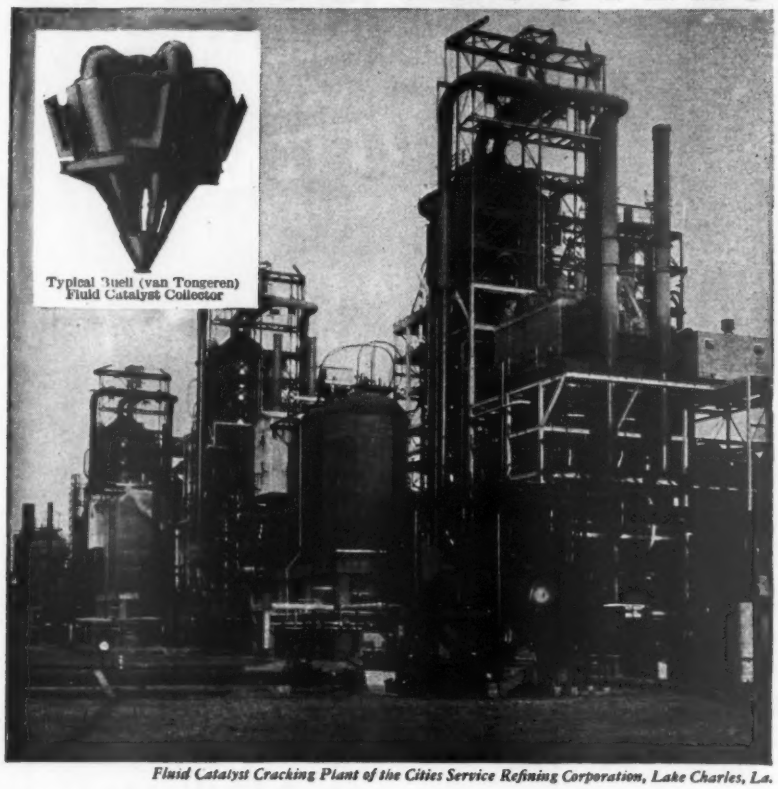

Fluid Catalyst Cracking Plant of the Cities Service Refining Corporation, Lake Charles, La.

Saving the Catalyst in High Octane Gasoline Production

• THE ABOVE ILLUSTRATION shows the plant of a large oil company, which is typical of the catalytic cracking plants used in the making of 100-octane gas. In this plant the fluid cracking process is employed.

An important part of the process is the Buell (van Tongeren) Catalyst Collector. Both the plant and the collector are representative of the type which have been installed by a number of oil companies, making possible the production of tremendous quantities of gasoline required by the war program. Catalytic cracking is but one of the developments which point up the ingenuity and scientific progress of the American oil industry and by which high production of 100-octane gas has been possible.

Further, here is the strongest of indications of Buell's high efficiency and wide application. In designing and building over two-thirds of the nation's fluid cat-cracking capacity . . . The M. W. Kellogg Company has installed Buell catalyst recovery systems throughout.

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Stein, Hall Vice Presidents

● Stein, Hall & Co., Inc., New York, manufacturers and distributors of starches, gums and dextrines, and importers of burlap and other commodities, has announced election of Don M. Hawley as vice president in charge of sales for all Stein-Hall companies. Mr. Hawley is director of the New York company and general manager of Stein, Hall Mfg. Co., Chicago. Robert M. Stein, secretary of the New York company, has been elected vice president.

On Brazil Trip

● Oliver H. Clapp, a vice-president of Stein, Hall & Co., Inc., New York, manufacturers and distributors of starches, gums and dextrines, and importers of burlap and other commodities, has left for Brazil on a four-months business trip.

Joins Hammermill

● Walter G. Hendrich, former technical director and plant manager of Byron Weston Co. and recently with the Office of Strategic Services in Washington, D. C., joined the research staff of Hammermill Paper Co., Erie, Pennsylvania.

Willamette Grinders Resume

● Water in the Willamette River has now reached a sufficient level so grinding mills of Hawley Pulp & Paper Co., Oregon City, Ore., and the West Linn mill of Crown Zellerbach Corp. on the opposite side of the river are both at work again.

More Newsprint In New Zealand

● Improvement in the war situation on the Pacific has enabled New Zealand newspapers to use more newsprint, 25 per cent of which is supplied by mills in British Columbia, the balance by eastern Canada.

Total tonnage during the past year was 13,000 tons; and it has been decided to release a further 2,000 tons to papers.

Canadian Newsprint Deliveries Maintained

● Announcement that Canadian deliveries of newsprint to the United States for the first six months of 1945 will be the same as in 1944—at the rate of 200,000 tons a month—is due to the fact that the only pulpwood available in the eastern producing area is that received by the mills last spring, and this supply is limited.

It had been anticipated in some quarters that the allotment of newsprint for the United States from Canada would be greater in 1945 owing to the larger number of men available for the woods camps and relaxation of restrictions on power.

However, the most serious retarding influence in Canadian production has been water shortage in the rivers which delayed delivery of wood to the mills during most of the season. This situation showed some improvement, however, during the last three months of 1944, and may be reflected in 1945 production.

No wood was cut last summer in Quebec, as the industry agreed to suspend cuting to free workers for farm, railroad and seasonal tasks, in return for wood cutting priority this winter.

Ronald Benson Joins Carl F. Miller & Co.

● W. Ronald Benson, after resigning as technical supervisor for National Paper Products Division, Carthage, N. Y., mill, Crown Zellerbach Corp., became technical sales representative for Carl F. Miller & Co., general chemical merchants of Seattle, on Nov. 15.

Mr. Benson is the son of Dr. H. K. Benson, head of the department of chemistry, University of Washington, and grandson of Judge J. T. Ronald of Seattle. His wife is the former Helen Schwartz of Carthage and they have two children.

A graduate of the U. of Washington, Mr. Benson was employed as assistant chemist at the Crown Zellerbach kraft mill in Port Townsend, Wash., and as a specialist in moisture proof coatings for the du Pont Cellophane Division at Buffalo, N. Y., before joining Crown Z at Carthage in 1934. He is a member of ACS and TAPPI.

Brown Co. Adds $4,000,000 RFC Loan

● F. G. Coburn, president of Brown Co., announced that directors voted to accept a loan from Reconstruction Finance Corp., which action will result in a total first mortgage debt of slightly less than $6,500,000 owed to R.F.C.

Of $4,000,000 additional borrowing, $2,000,000 for plant improvements was authoried by R.F.C. prior to reorganiation of Brown Co. in 1941, but has not heretofore been disbursed to Brown Co. The new fund will finance reconstruction of the company's plants in Berlin, N. H.

New Zealand Wood Tested For Rayon and Book Paper

● New York State College of Forestry at Syracuse University has received 20 cords of Monterey pine from the Wakatane Paper Mills, Auckland, New Zealand, for tests to determine possibilities of making satisfactory chemical pulp for book and writing paper, rayon and other purposes.

The Monterey pine grows about four feet in height annually and often reaches a diameter of 18 inches when 12 years old. An acre of mature timber will yield 100 to 150 thousand board feet.

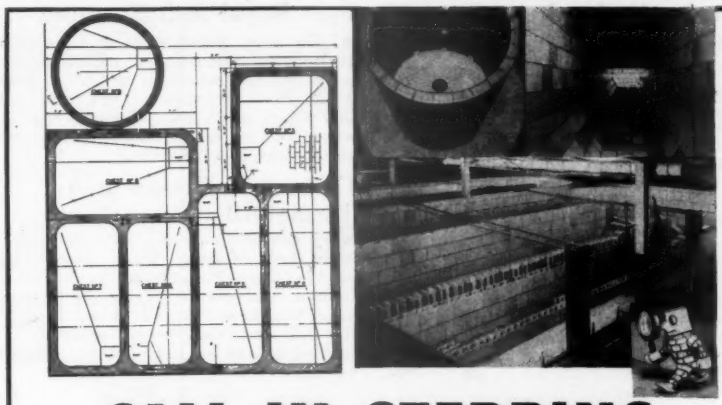
Camas Man Wins Awards

● Capt. Francis A. Stetson, 27, accounting clerk for the Camas, Wash., mill of Crown Zellerbach Corp., before entering army air forces, has been cited for serving as lead bomber of formations and destroying vital enemy installations. He received an Oak Leaf Cluster to the Distinguished Flying Cross.

Captain Stetson holds the awards of DFC and Air Medal with three Oak Leaf Clusters. He is with the Eighth Air Force B-17 Flying Fortress Squadron in Europe.

Pulp Consumers Give $10,000 to Wood Campaign

● The Association of Pulp Consumers, Inc., has contributed $10,000 to the War Activities Committee of the Pulpwood Consuming Industries for use in its campaign to stimulate the production of pulpwood. This amount is in addition to the $50,000.00 which the Association contributed about a year ago.



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Mechanics Lead In Longfibre League

● Standings in the Longfibre Bowling League, eight teams from the Longview Fibre Co., Longview, Wash., for the week ending November 24, were announced by C. G. Ditter, secretary-treasurer of the league and bag factory clerk at the plant. The first half of the league will close Dec. 21.

Standings follow:	Won	Lost	Pct.
Mechanics	32	8	.800
Pulp Mill	22	18	.550
Pipefitters	22	18	.550
Supervisors	21	19	.525
Machine Room	21	19	.525
Bag Plant	16	24	.400
Box Plant	16	24	.400
Office	12	28	.300

Port Royal Mill Resumes

● The Port Royal Pulp & Paper Co. announces resumption of operations at its mill at the mouth of the Saint John River, New Brunswick. The mill was shut down in October owing to the low water level in Spruce Lake, but the situation has now improved.

Chinese U. President Tours Mill

● Camas division mill of Crown Zellerbach Corp., Camas, Wash., was visited by Mr. Chen Ping-Chuan, president of Canton University situated at Kwanztung, China, and he was shown through the mill and had various processes explained to him by J. E. Hanny, resident manager.

Longview Fibre Makes State's Best Bond Record

● Again Longview Fibre Co., Longview, Wash., has gone over the top for the War Loan Drive. This time the company made its quota two days before the 6th loan drive started. The Longview Fibre Co. has gone over the top in all drives, with 100% participation and over 10% gross payroll since August. 1942.

The 15 solicitors were made up of members of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers Local No. 153 and the International Brotherhood of Paper Makers Local No. 268. and salaried employees. No hourly-rated employee was permitted to solicit a salaried employee, and vice versa.

This record appears to be the best in Washington state, among all industries, for a plant with a like number of employees as Longview Fibre Co.

Bellingham Bowlers Good

Bellingham. Wash., bowlers from the pulp and paper mills are now ranked among the best in the city. In recent competition in the Major City League, Joe Kemphaus, of Puget Sound Pulp. ran up a 643 with low game of 208, Fran Francisco come behind him with 643 with low game of 205. Bill Dynes, assistant superintendent of the Pacific Coast Paper Mills, failed to break 600, but he did run up a 233 singles, with his team stacking up 1,028 pins.

$500 Suggestion Prize

Powell River Co. is getting real results from its offer to pay cash to employees for ideas, and many of the employees are finding that it pays, too.

Alex Morris was recently awarded $500 for suggested improvements to the paper-strip carrying roll on the newsprint machines.

Tech. Supt. of Bowater's

V. J. Sutton, for eight years control superintendent of St. Anne Paper Co. at Beaupre, Quebec, has been appointed technical superintendent of Bowater's Newfoundland Pulp & Paper Mills, Ltd., Corner Brook, Newf'd. Mr. Sutton was formerly with Mersey Paper Co. and Abitibi Power & Paper Co.

Big Game Bags

Two Puget Sound Pulp & Timber Co. men have returned from hunting trips up the Cariboo in British Columbia with fine bags. Max Mercer, belt repairman, brought home a young 600-lb. moose. Ing Lundin, electrician, brought back the limit of deer and elk. Last year Mr. Lundin shot a bear in his backyard just out of Bellingham.

Asst. Sec'y of Ontario Paper

T. E. Siegerman of the Montreal office, Quebec North Shore Paper Co., has been appointed controller and assistant secretary of the Ontario Paper Co. and associated companies.

Son Wins in Songfest

Hjalmer Brannstrom, leadburner for the Puget Sound Pulp & Timber Co., always one to sing at his work, now really has something to sing about. His son, Norris, has won awards in competition with high school singers in a state contest. Young Brannstrom also was a tackle on the Bellingham High football squad.

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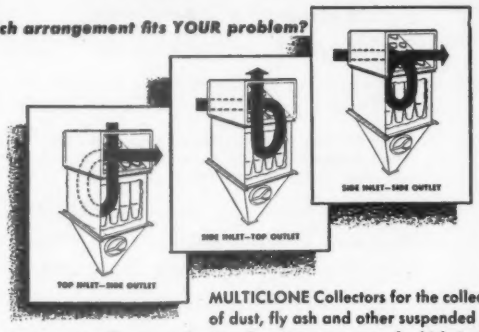

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